33rd Year

JUNE, 1949

RUBBER AGE

SETSIT-5

ACCELERATOR FOR

NATURAL LATEX

GR-S LATEX

NEOPRENE LATEX

It is...

Liquid—No ball milling required.

Easy to use—Dilute with equal volume of water and stir into latex.

Recommended for highest possible rate of cure at low temperatures.

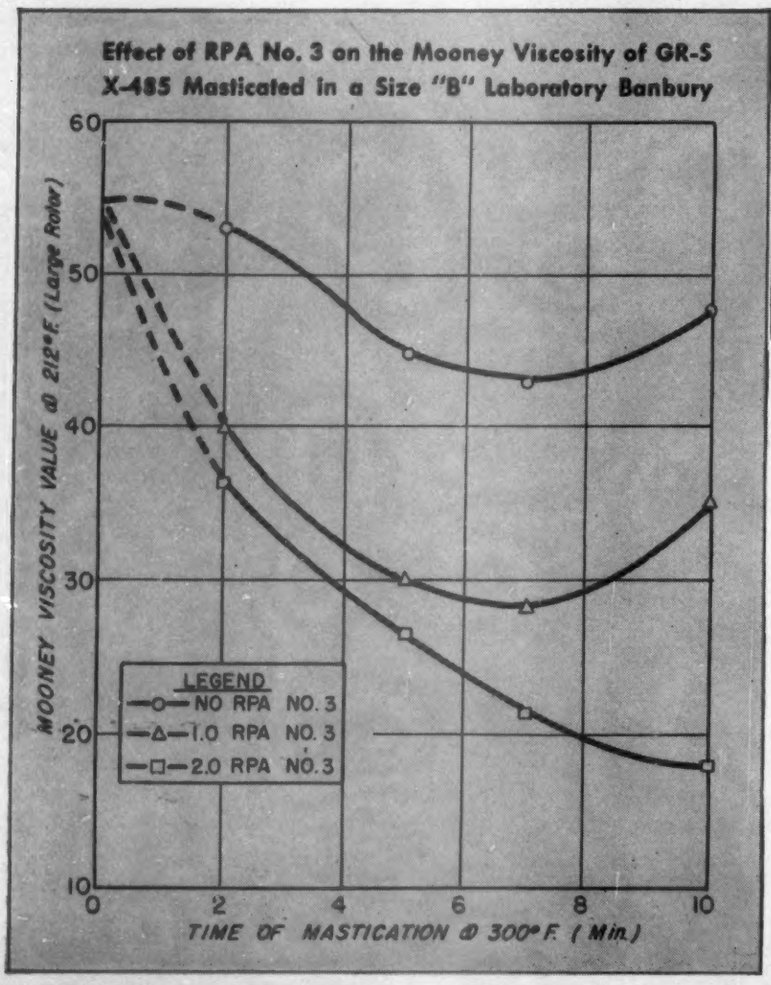
R. T. VANDERBILT CO. INC.

230 Park Avenue, New York 17, N. Y.

FACTORY-PROVED

for peptizing "low-temperature" GR-S

DU PONT RPA No. 3



FOR IMPROVED PROCESSABILITY
•
LOWER PROCESSING TEMPERATURES
•
SMOOTHER EXTRUSION

RPA No. 3 is an excellent peptizer for "low-temperature" GR-S.

The curves in the accompanying graph show the effectiveness of 1.0 and 2.0 parts of RPA No. 3 in reducing the Mooney values of a 41° F. GR-S polymer. And factory runs have shown that this reduction in Mooney values means lower operating temperatures, smoother extrusions and improved processability.

Report BL-231 gives detailed information on the use of RPA No. 3 in compounding and processing "low-temperature" GR-S tire tread stocks. Extra copies are available. Your Du Pont representative will be glad to make recommendations on the use of RPA No. 3 to suit *your* plant conditions. Consult him today. Or write: E. I. du Pont de Nemours & Co. (Inc.), Rubber Chemicals Division, Wilmington 98, Delaware.

DU PONT RUBBER CHEMICALS

E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Del.

DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING...THROUGH CHEMISTRY

THE RUBBER AGE, published monthly by the Palmerton Publishing Co., Inc., Printing Office, East Stroudsburg, Pa. Editorial and Advertising Offices at 250 West 57th Street, New York 19, N. Y. Entered as second class mat-ter October 20, 1933, at the Post Office at East Stroudsburg, Pa., under the Act. of March 3, 1879. Subscription in United States, $3.00 a year; Canada, $3.50; Foreign, $4.00. June, 1949, Vol. 65, No. 3.

TECHNOLOGY DEPARTMENT

Proven time-and-money-saver for rubber compounders!

PUBLIC LIBRARY
JUN 28 1949
DETROIT

Good-rite CHEMICALS RESIN 50

REG. U. S. PAT. OFF

Easy-processing stiffening agent for natural and American rubber products

GOOD-RITE RESIN 50 is the first in a new series of high styrene-butadiene copolymers to be developed by B. F. Goodrich Chemical Company.

Its special purpose is to serve as a stiffening agent. But it offers rubber compounders many extra advantages.

For example, when used in the recommended proportions, Good-rite Resin 50

- **gives higher elongation**
- **improves molding and flow characteristics**
- **saves masterbatching**
- **gives lower brittle point and compression sets**

Resin 50 is made as a white, *free-flowing* powder. Its size is such that it will pass a 100 mesh screen. It can be compounded in a wide range of colors. Added to rubber compounds, it also provides a positive reinforcement and a more readily handled compound—because it acts as a plasticizer at processing temperatures.

Good-rite Resin 50 is recommended for shoe soling compounds, floor tiling —has many other possibilities.

Send for complete information—find out how Good-rite Resin 50 may help you produce better products, easier, at lower cost. Please write Dept. HB-6, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio.

Hycar
Reg. U. S. Pat. Off.
American Rubber

B. F. Goodrich Chemical Company

A DIVISION OF THE B. F. GOODRICH COMPANY

GEON polyvinyl materials • HYCAR American rubber • GOOD-RITE chemicals and plasticizers

Philippic—*Heated conversation*

Philblack® A—*The HMF black that gives big league performance in the making of rubber goods*

THERE'S no arguing the exceptional mixing and processing characteristics of Philblack A. This fast-curing HMF black imparts remarkably good extrusion and molding qualities . . . gives a smooth, satiny finish after vulcanization.

In tire carcasses Philblack A is especially desired for its excellent heat dissipating properties. It may be blended with Philblack O for lower cost tire treads. Available in bags or in bulk . . . always of uniform quality!

PHILLIPS CHEMICAL COMPANY

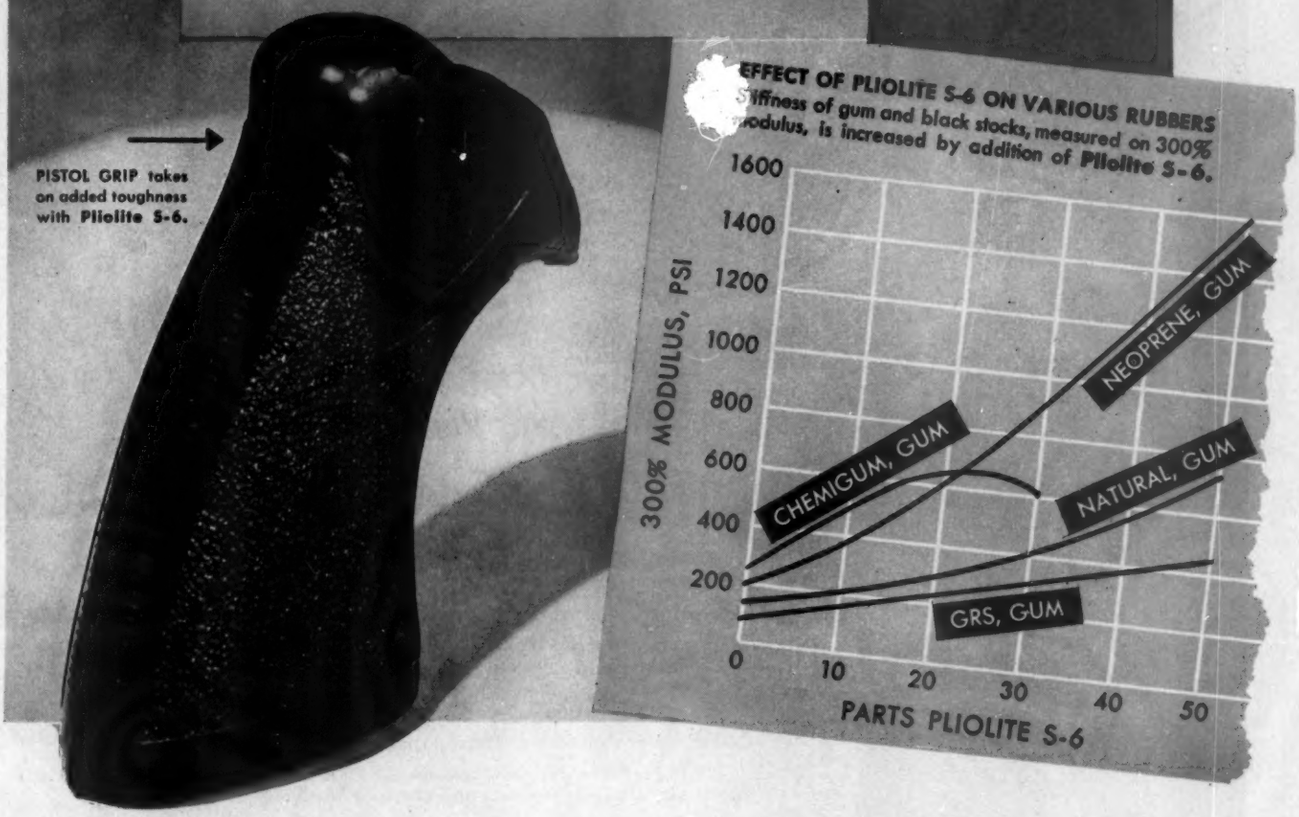
PHILBLACK SALES DIVISION

EVANS BUILDING · AKRON 8, OHIO

Warehouses in Akron, Boston, Chicago and Trenton. West Coast agent: Harwick Standard Chemical Company, Los Angeles. Canadian agent: H. L. Blachford, Ltd., Montreal and Toronto.

for Hardness Stiffness Toughness

use PLIOLITE S-6



FOR longer end-use of products and easier fabrication, fortify the natural toughness of rubber with **Pliolite S-6**. The chart shows how effectively **Pliolite S-6** copolymer resins add stiffness to stocks for such parts as this pistol grip, extrusions such as hydraulic and steam hose gaskets, and to a wide range of molded components.

Besides adding stiffness, **Pliolite S-6** also increases hardness and tensile while imparting excellent impact resistance. Because this resin is light in color, it is ideally suited for the reinforcement of light-colored stocks. You will find **Pliolite S-6** well suited for all applications needing a light-color, low-gravity stock of 70 to 100 durometer hardness with good processability and marked moldability.

You can get **Pliolite S-6** in powder form for your own mixing, or in master batches. For samples and full details, write Goodyear, Chemical Division, Akron 16, Ohio.

USE PROVED *Products*

GOODYEAR

Pliolite—T.M. The Goodyear Tire & Rubber Company

Indispensable TO YOU IN THE RUBBER INDUSTRY—

Gives Your Products

PROTECTION and SALES APPEAL

at Little Cost!

BEACOFINISH—a unique family of coating materials conceived to give your products greater durability and eye appeal. These highly concentrated wax emulsions that can be diluted with up to four parts of water can be used with the utmost safety and economy.

BEACOFINISH is therefore of four-fold importance to you:—

1. ***It Protects*** your products against their natural enemies—air, sunlight, moisture and excessive handling.
2. ***It Improves*** the appearance of your product for its uniform coating stimulates greater consumer interest.
3. ***It's Economical*** because its high dilution potential (without losing efficiency) allows one gallon to cover 15,000 sq. ft.
4. ***It's Safe*** being a wax in water emulsion, it eliminates the fire and health hazards of volatile-solvent based finishes.

BEACOFINISH can be applied by dipping, sponging, spraying or brushing—dries in about 20 minutes—faster if force-dried—to give a hard protective coating of great elasticity.

BEACOFINISH may be ordered in Neutral or Black, in varying degrees of luster from brilliant to dull. It is so concentrated, from one drum you can obtain potentially up to five drums of superior coating for your products.

CONSULT US—WRITE US TODAY

Let us show you how BEACOFINISH can make your products more attractive and saleable—protect them from damage—you from loss—in production and transit!

THE
BEACON
PURITY · UNIFORMITY · DEPENDABILITY
COMPANY
Chemical Manufacturers
97 BICKFORD STREET
BOSTON 30 MASSACHUSETTS

In Canada: PRESCOTT & CO., Reg'd.
774 St. PAUL ST. W., MONTREAL

Compare delivered volume costs of CALCENE T SILENE EF with those of other reinforcing pigments

A study of *delivered volume costs* of reinforcing pigments for your products may reveal economies through the use of Calcene T or Silene EF. In addition, these Columbia pigments can be used for white or colored stocks.

We'll be glad to provide data for making comparative analyses. Just write Pittsburgh Plate Glass Company, Columbia Chemical Division, Fifth at Bellefield, Pittsburgh 13, Pa.

***CALCENE T**—A specially prepared, white, coated, precipitated calcium carbonate of fine particle size—confers high tensile strength, resistance to tear and abrasion, low modulus, smooth, fast extrusion and good general processing properties to natural and synthetic stocks.

***SILENE EF**—A very finely divided, white, precipitated, hydrated calcium silicate—confers high modulus, hardness, tear resistance, and good tensile strength up to high loadings. Especially desirable for hard abrasion resistant natural and synthetic stocks.

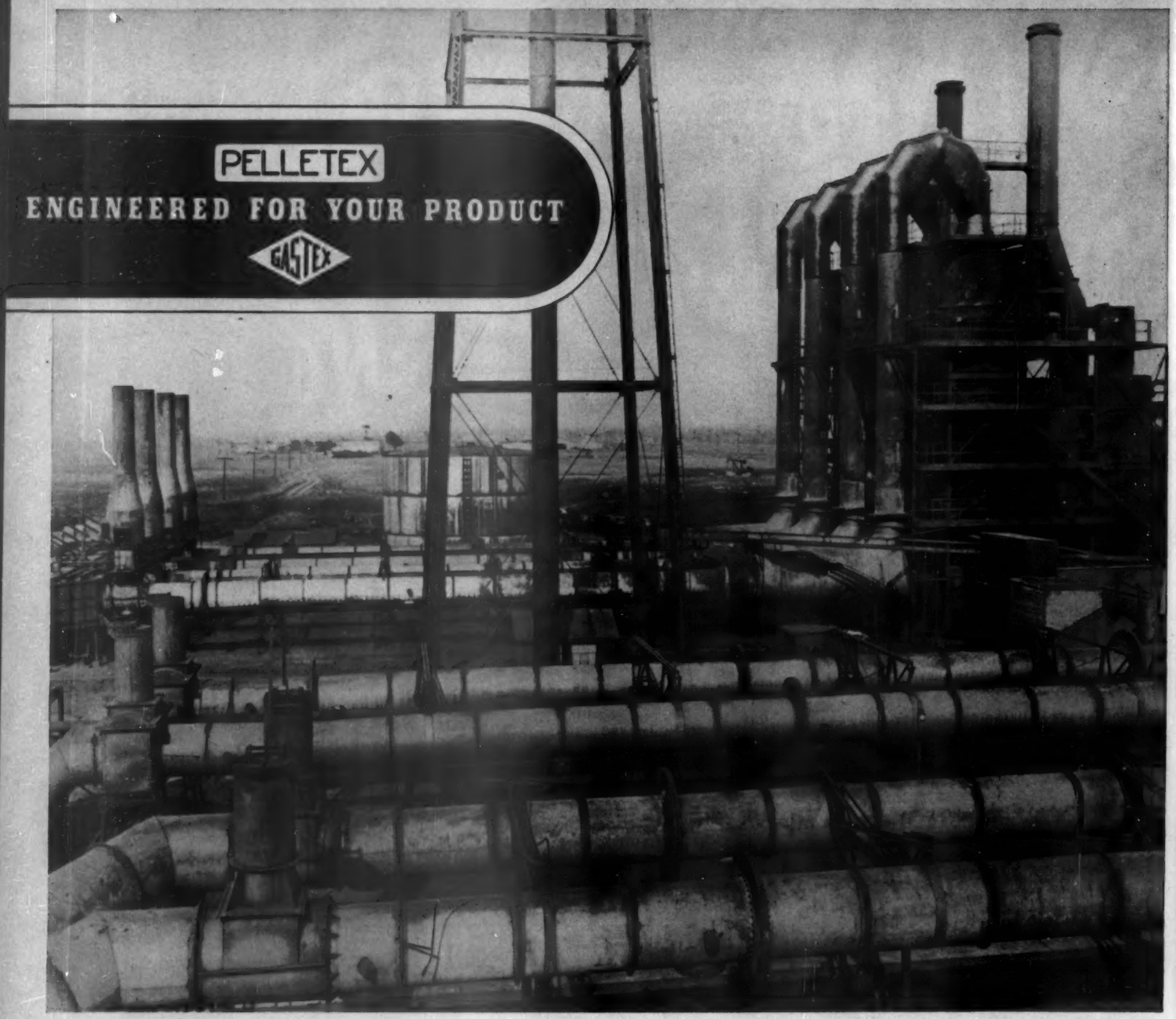
**Registered U. S. Patent Office.*

COLUMBIA CHEMICALS

CHICAGO · NEW YORK · BOSTON · CINCINNATI · MINNEAPOLIS · CHARLOTTE · ST. LOUIS · CLEVELAND · SAN FRANCISCO · PITTSBURGH · PHILADELPHIA

PAINT · GLASS · CHEMICALS · BRUSHES · PLASTICS

PITTSBURGH PLATE GLASS COMPANY



PELLETEX begins here . . . It takes a long, tough trip through these furnaces, flues, sprayers, precipitators, cyclones, pelletizers, driers; passes a multitude of laboratory tests — all this, before it is even ready to pack for the rest of its journey to your rubber factory. Specify PELLETEX . . . a high quality carbon black for your most exacting compound.

CABOT

The GENERAL ATLAS Carbon Co.

77 FRANKLIN STREET, BOSTON 10, MASS.

Herron Bros. & Meyer Inc., New York and Akron • Herron & Meyer of Chicago, Chicago • Raw Materials Company, Boston • H. N. Richards Company, Trenton
The B. E. Dougherty Company, Los Angeles and San Francisco • Delacour-Gorrie Limited Toronto

For Quality Vinyl Products

use CHEMIGUM as permanent plasticizer

LABORATORY experiments and actual use of CHEMIGUM 30-N-4-NS — one of Goodyear's acrylonitrile rubbers—indicate that a most promising application is its use as a permanent plasticizer in producing better vinyl products.

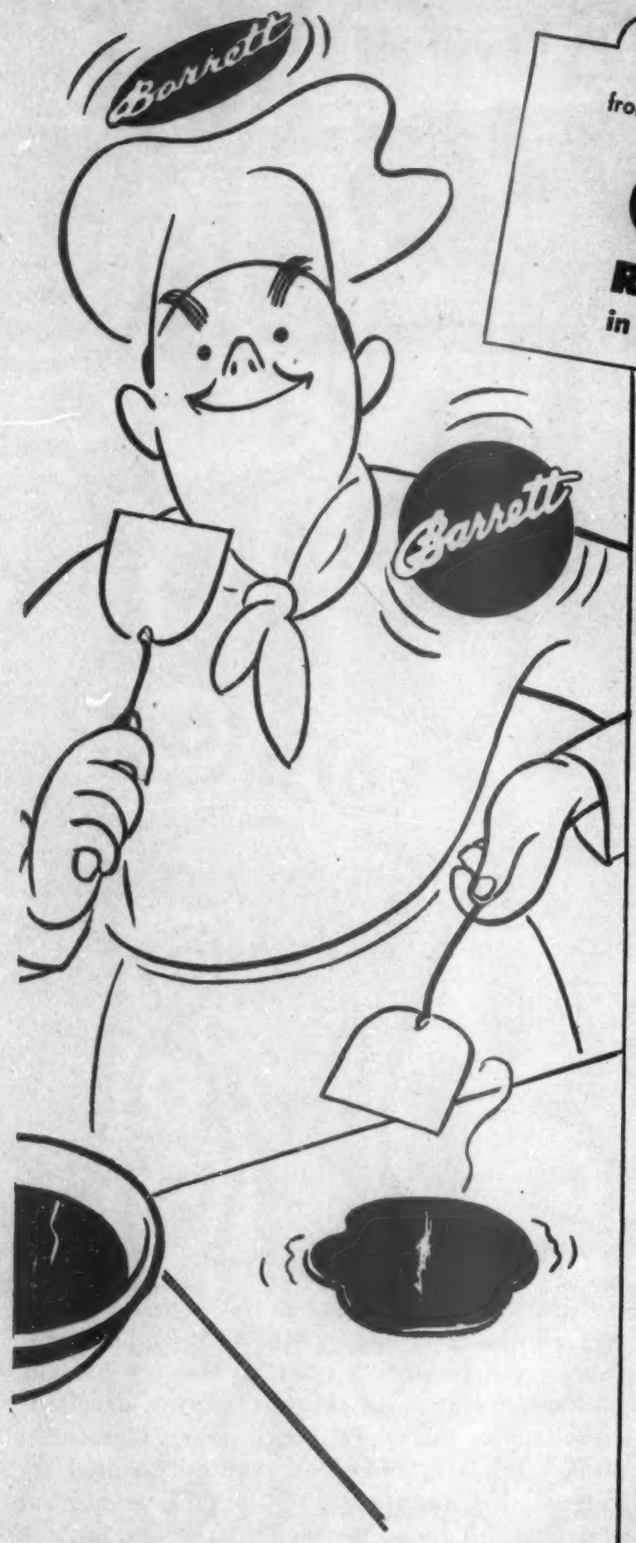
The easiest-processing rubber of its type, CHEMIGUM as a plasticizer is highly compatible, non-volatile, non-migratory and non-extractable. Plasticization of your end product is permanent—without "blooming" or "sweating out"—when you compound with CHEMIGUM. Its presence facilitates higher loading of your vinyl stocks and it can be used with light colors.

CHEMIGUM is available in two other forms—and all three find extensive use in oil-resistant rubber compounds. CHEMIGUM N-3-NS has the higher acrylonitrile content, giving excellent oil resistance and ready processability. CHEMIGUM 30-N-4-NS is a softer rubber ideally suited for extrusion. CHEMIGUM 50-N-4-NS is somewhat tougher and recommended for use in molded items. For full details and sample write: Goodyear, Chemical Division, Akron 16, Ohio.

USE PROVED *Products*

GOODYEAR

Chemigum—T.M. The Goodyear Tire & Rubber Company



RECIPE

from the Barrett Rubber Research Laboratory

FOR

CUMAR*

RESIN, EX GRADE

in a Natural Rubber: GR-S Blend

RECIPE

Smoked Sheets	65.00	65.00
GR–S 17	35.00	35.00
"CUMAR" Resin, EX Grade	....	15.00
Calcium Carbonate (Precipitated)	150.00	150.00
Zinc Oxide	5.00	5.00
"LAUREX"	2.00	2.00
"AGERITE ALBA"	1.00	1.00
Paraffin	2.00	2.00
Sulfur	2.50	2.50
Benzothiazyl Disulfide	0.75	0.75
Diphenylguanidine	0.25	0.25
Total	**263.50**	**278.50**
Specific Gravity	1.52	1.49
Mooney Viscosity, ML, 4 MIN. @ 212 F.	40	40

Mooney Scorch, MS, 250 F.

Minutes	Viscosity	
1	22	18
5	19	18
10	18	17
15	18	17
20	46	28

Press Cure @ 287 F. (40 lb.) — 20 Minutes

		Aged 14 Days		Aged 14 Days
	Unaged	@ 70 C.	Unaged	@ 70 C.
Tension and Hardness Data				
Stress, 300%, psi.	500	850	350	600
Stress, 500%, psi.	1400	1900	950	1400
Tensile, psi.	1900	2000	1850	2000
Elongation, %	610	520	700	630
Permanent Set, %	28	21	30	30
Hardness, Shore A.	61	70	53	63
Tear Resistance, Angle, Pounds Per One Inch Thickness	195	180	210	220
Press Cure @ 287 F. (40 lb.) — 30 minutes				
Abrasion Resistance, DuPont	....	680	....	720
Compression Set, 40% Constant Deflection, %	25.1	....	26.3	....
Resilience, Yerzley, % Energy Recovery	57.6	66.3	47.7	57.3
Impact Resilience, G-H, % Rebound	45.1	49.6	38.6	43.3

The comparative data given here illustrate the effectiveness of "CUMAR" resin, EX grade, as a softener and extender for the elastomer blend. As a softener it provides a smooth-processing stock, and as an extender it contributes to the retention of significant physical properties, particularly tear resistance. Based on performance and economy, "CUMAR" resin, EX grade, has found wide application in automotive and aviation parts, footwear and drug sundries, flooring and household goods, heels and soles, and in mechanicals and insulated wire stocks. In contact with enamels and lacquers, the resin is essentially non-migrating, a property which suggests additional applications.

Barrett*

*Reg. U. S. Pat. Off.

THE BARRETT DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

DOUBLE-CHECKED CHEMICALS FOR THE RUBBER INDUSTRY

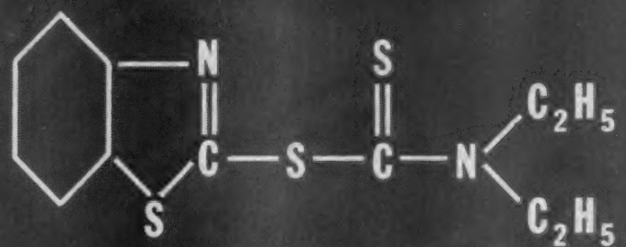
NEW Self-Activating Primary Accelerator

SHARPLES ACCELERATOR

ETHYLAC

2-BENZOTHIAZYL-N-N-DIETHYL THIOCARBAMYL SULFIDE

V, 6.10-73/1-5C-1248



Combines the essential chemical structures of both thiazole and thiuram types of accelerator.

Exhibits high activity; good delayed action; good processing properties.

Is non-discoloring; practically dust-free.

Requires no special handling precautions.

Has excellent storage stability.

Samples and compounding data available on request.

PROPERTIES:

Color . . . light yellow to tan

Odor . . . . . characteristic

Melting Point . . 71° C. min.

Volatiles . . . . 0.5% max.

Specific Gravity 1.27

Mol. Wt. (calcd) . . . 282.4

SHARPLES CHEMICALS INC.

INTERMEDIATES FOR RUBBER CHEMICALS

ACCELERATORS • VULCANIZING AGENTS • PLASTICIZERS

WAX • POLYMERIZATION CONTROLLER • CLAYS

350 Fifth Ave., New York 1, N. Y.
1659 W. Market St., Akron 2, Ohio
80 E. Jackson Blvd., Chicago 4, Ill.

SHARPLES TRADE MARK CHEMICALS

For Plastics

A new Du Pont Pigment that has...

EXCELLENT LIGHTFASTNESS

UNUSUAL HEAT STABILITY
Unchanged at 400° F. in Polystyrene molding

NO MIGRATION

DU PONT "MONASTRAL" BLUE BG BT-297-D

New member of the "Monastral" family has a greenish blue shade... increased brilliance.

An unusual combination of excellent properties makes "Monastral" Blue BG (BT-297-D) particularly suitable for the production of plastics in the greener hue range. It has far greater heat stability than the usual blue pigment. It is unchanged at 400° F. and above in Polystyrene molding.

Furthermore, "Monastral" Blue BG (BT-297-D) has all the other important features required in pigments for use in vinyl plastics—

good dispersion,

freedom from crocking and migration,

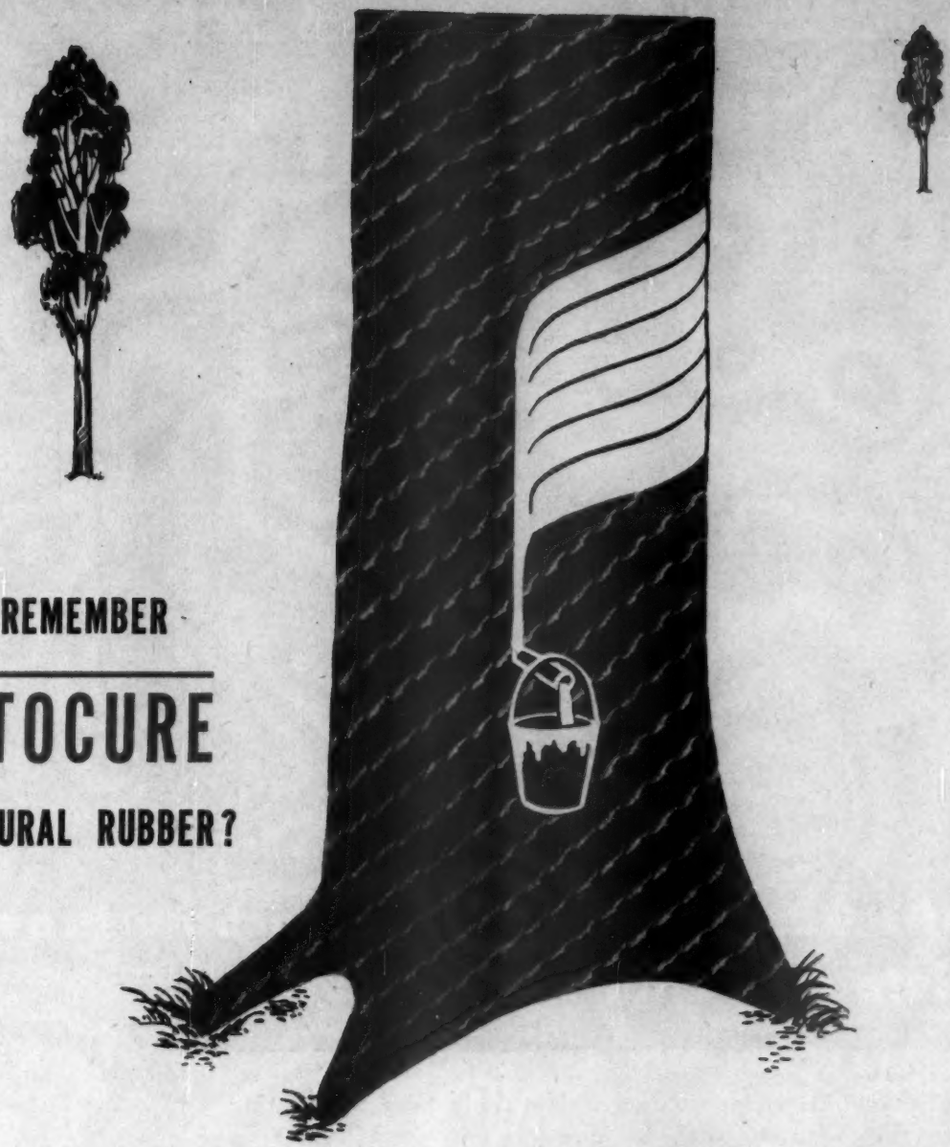
non-reactivity with the resin.

For further information on "Monastral" Blue BG and other Du Pont pigments for plastics, ask your Du Pont salesman—or write: E. I. du Pont de Nemours & Co. (Inc.), Pigments Department, 1007 Market Street, Wilmington 98, Delaware.

DU PONT PIGMENTS FOR PLASTICS

DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY



DO YOU REMEMBER SANTOCURE FOR NATURAL RUBBER?

Back before the war, many compounders knew and used Santocure as their number one accelerator for *natural* rubber. With the shift to synthetics, they found that Santocure did an equally good job — saved acceleration costs, improved quality and added a greater margin of processing safety.

Now, with the swing back to crude, we want to remind you that Santocure still offers all the qualities that make it the superior accelerator for vulcanizing *natural* rubber. Furthermore, it is available for immediate shipment in any quantity.

YOU GET ALL THIS WITH SANTOCURE

- High modulus
- High tensile
- Snappy cures
- Quick cure at vulcanizing temperatures
- Good flow in mold
- Excellent aging
- Little reduction with carbon black
- Clean, sharp molding
- No set up when rerunning scrap
- As much or little delayed action as necessary
- No back rinding or burning in
- No bin curing
- No scorch
- No precuring

Detailed information and samples of Santocure will be sent promptly on request. Write to MONSANTO CHEMICAL COMPANY, Rubber Service Department, 920 Brown Street, Akron 11, Ohio . . . or, simply return the coupon.

Santocure: Reg. U. S. Pat. Off.

MONSANTO
CHEMICALS AND PLASTICS

MONSANTO CHEMICAL COMPANY
Rubber Service Department
920 Brown Street
Akron 11, Ohio

RA-4

Please send me ( ) further information; ( ) samples of Santocure.

Name_____ Title_____

Company_____

Address_____

City_____ State_____

SERVING INDUSTRY...WHICH SERVES MANKIND

This IOI Gas-Fired Latexing Machine Provides Complete One-Man Process Control

SOUND ENGINEERING, rugged construction, compact design, operating economy—these are some of the basic reasons why this IOI latexing machine, shown above from the wind-up end, yields maximum returns on the investment it represents. Typical of its many outstanding features is the completeness of one-man control of the latexing operation which it makes possible.

In operation at the Inland Rubber Corporation, Chicago, this IOI medium-duty, gas-fired unit is currently operating at 28 YPM. Using two large capacity air heaters, it represents the first practical and successful application of gas in a fabric latexing machine.

The same advantages which characterize this machine—superior engineering, and construction, small space requirements and low operating costs—are incorporated in heavy-duty IOI latexing machines designed for operating speeds of 60 YPM and above. Units are for weftless or woven fabric latexing in train with rubber calender or as a separate operation.

For complete information on IOI Coating and Handling Equipment for Textiles, Papers, Films and Foils write for "Blueprint for Industry, Part V"—or an IOI engineer will be glad to call in person if you prefer.

Panelboard of operating control gear which gives operator complete mastery over every phase of the machine's operation. Note safety dials and main DC control. One of the two direct, gas-fired air heaters is at the left.

TIRE FABRIC LATEXING MACHINES • SPONGE RUBBER DRYERS • V BELT, CORD COATING SYSTEMS

FABRIC COATERS AND SYSTEMS • CONSTANT TENSION WINDUPS AND UNWIND MACHINES • CURING OVENS

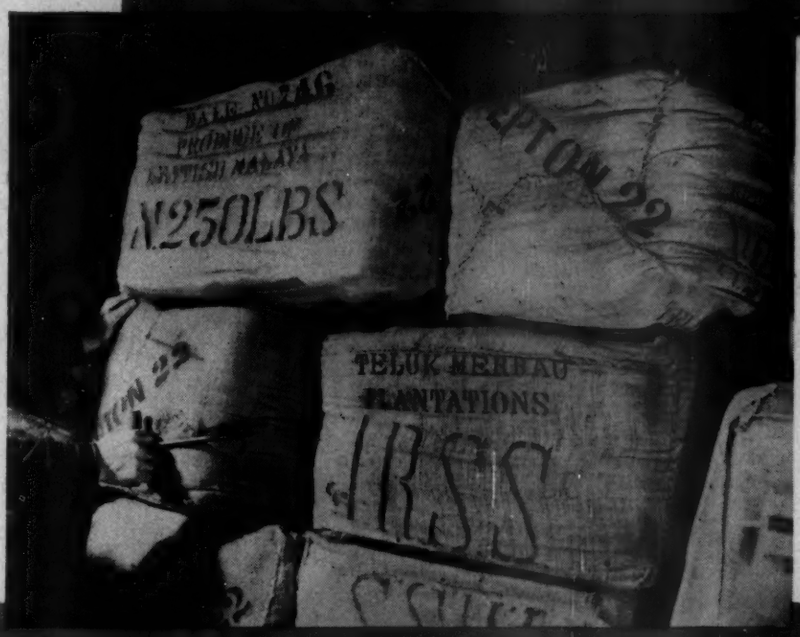
INDUSTRIAL OVENS, INC.

IOI ENGINEERING VERSATILITY

13825 TRISKETT ROAD CLEVELAND 11, OHIO

PEPTON* 22 Plasticizer

can be added at the PLANTATION or THE MILL



First shipment of natural rubber containing PEPTON 22 from Teluk Merbau Plantations is unloaded at a New York dock. The PEPTON 22 was incorporated in the latex prior to coagulation.

Calco

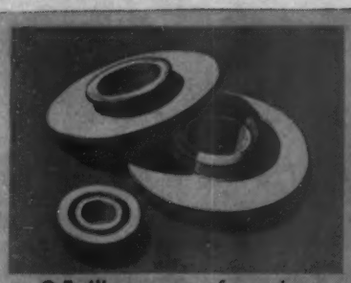
PEPTON 22 Plasticizer, a free-flowing powder, can now be incorporated into latex at the plantation... or it can be added to natural rubber or GR-S during the milling process. In either case, it acts as an efficient peptizer or catalytic plasticizer.

PEPTON 22 cuts breakdown time at least 50% and reduces power consumption. It improves processing qualities and has no effect on the physical or aging characteristics of the rubber.

AMERICAN Cyanamid COMPANY

CALCO CHEMICAL DIVISION
RUBBER CHEMICALS DEPARTMENT
BOUND BROOK, NEW JERSEY

SALES REPRESENTATIVES AND WAREHOUSE STOCKS: Abron Chemical Company, Akron, Ohio • Ernest Jacoby & Company, Boston, Mass. • Herron J. Meyer of Chicago, Chicago, Ill. • H. M. Royal, Inc., Los Angeles, Calif. • H. M. Royal, Inc., Trenton, N. J. • In Canada: H. Lavender Chemical Company, Ltd., Montreal and Toronto • In Singapore: The East Asiatic Company, Ltd.



G-E silicone gum—for making chemical- and heat-resistant rubber

G-E silicone compounds—for your own molding and extruding operations

General Electric silicone mold release agents speed rubber button production at Parker Stearns & Co., Brooklyn, N. Y.

How G-E Silicones button down reject costs

Savings from a substantial reduction in reject losses are now possible at *this* rubber molding plant—thanks to G-E silicone mold release agents, which Parker Stearns & Co. describes as far superior to any they have used. These easy-to-apply mold lubricants permit quick release of unmarred, unscratched buttons from molds.

Savings likewise result from the increased production made possible by G-E silicone mold release agents. There are fewer slow-downs and stoppages due to sticking buttons. Mold down time is also reduced because these lubricants do not build up in molds, thus cutting both the time and cost of cleaning.

Other G-E silicone products of interest to rubber molders include G-E silicone gum for making chemical- and heat-resistant rubber, and G-E silicone compounds for molding and extruding in your own plant.

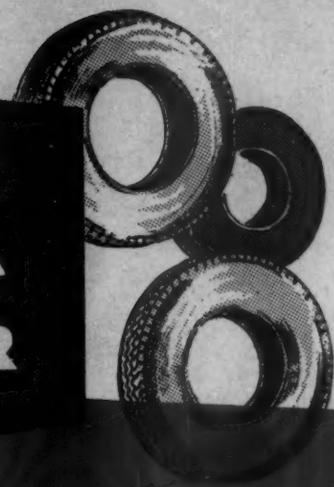
Why not find out more about how G-E silicones can help you in your rubber molding operation, how they may cut *your* costs, improve *your* products? Just write to Section 41-6, Chemical Department, General Electric Company, Pittsfield, Mass.

GENERAL ELECTRIC

CD49-R4

SILICONES for Indu

CRYSTEX
INSOLUBLE SULPHUR



for maximum control of

Sulphur-Blooming

OTHER RUBBERMAKERS' CHEMICALS

Commercial Rubbermakers' Sulphur, Tire Brand, 99½% Pure

•

Refined Rubbermakers' Sulphur, Tube Brand

•

"Conditioned" Rubbermakers' Sulphur

•

Carbon Tetrachloride

•

Carbon Bisulphide

•

Caustic Soda

•

Sulphur Chloride

•

Flowers of Sulphur 99½% Pure (30% Insoluble Sulphur)

Stauffer CHEMICALS SINCE 1885

CRYSTEX INSOLUBLE SULPHUR OFFERS FLEXIBILITY. Being 99½% pure, with an 85% insoluble sulphur content, it is used straight for maximum control of sulphur-blooming. However, in some particular rubber stocks, the desired results can be obtained with a lower insoluble sulphur content. Blending CRYSTEX with Flowers of Sulphur (which normally tests 30% insoluble sulphur) is an economical and convenient method to lower the insoluble sulphur content.

If you have not in recent months checked the feasibility of using CRYSTEX in your operations, we suggest you do so, as the price of this Insoluble Sulphur is lower today than at any time.

Write today for CRYSTEX literature and prices.

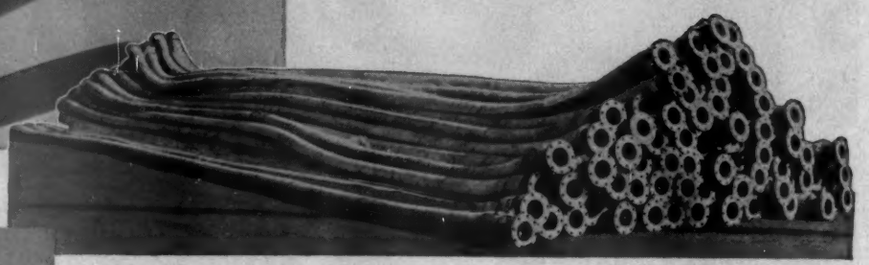
Stauffer CHEMICAL COMPANY

420 Lexington Avenue, New York 17, N. Y.

221 North LaSalle St., Chicago 1, Illinois
555 South Flower Street, Los Angeles 13, Cal.
636 California Street, San Francisco 8, Cal.
424 Ohio Building, Akron 8, Ohio
Apopka, Fla. — N. Portland, Ore. — Houston 2, Tex. — Weslaco, Tex.

Neoprene casters for industrial trucks. Courtesy L. H. Gilmer Company, Division U. S. Rubber Company.

V-Belt drive on mechanical rotary drilling oil jig. Courtesy L. H. Gilmer Company, Division U. S. Rubber Company.



Neoprene oil suction and discharge hose for marine service. Courtesy Quaker Rubber Corporation, Philadelphia.

Neoprene covered seismograph cable. Courtesy General Geophysical Company.

Leading Neoprene Compounders Use

K&M LIGHT MAGNESIUM OXIDE

for products that must do a hard day's work

From high-quality Dolomite rock, Keasbey & Mattison Company extracts magnesia and processes it into MgO that is feather-light and absolutely uniform. Many leading neoprene compounders insist on K&M Light Magnesium Oxide because they have found it is always dependable, always top quality.

For your neoprene products—no matter what their ultimate use—there are advantages to be gained by using K&M Light Magnesium Oxide. Write to us, or to our distributor listed below.

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA

One of America's oldest and most reliable makers of asbestos and magnesium products

Our Distributor for K&M Light Magnesium Oxide is

AMERICAN CYANAMID COMPANY

30 Rockefeller Plaza, New York 20, N.Y.

with the following sales representatives to the rubber industry and stock points:
AKRON, OHIO, Akron Chemical Company • BOSTON, MASS., Ernest Jacoby & Company
CHICAGO, ILLINOIS, Herron & Meyer • LOS ANGELES, CAL., H. M. Royal, Inc.
TRENTON, N. J., H. M. Royal, Inc.

K&M best in asbestos ®

press

In the manufacture of the famous "Cat's Paw" rubber soles and heels, Baldwin Steam Platen Presses help to maintain the high *production rate* required to satisfy national demand —and to maintain the *uniform quality* that keep Cat's Paw among the leaders in the field.

Baldwin Steam Platen Presses are invaluable aids in many process industries. They turn out top-quality products, reduce costs through production speed, assure profits through dependable performance. The design of these Baldwin Presses is the result of years of research and development, reinforced with practical experience gained in the field.

Features include low-stressed columns with an extra margin of safety—precision ground rams—drilled and ported steam plates, with the highest accuracy in alignment and finish—and simple, precise controls. Capacities, dimensions and features can be tailored to your specific needs. For a general description of the units, ask for Bulletin 254.

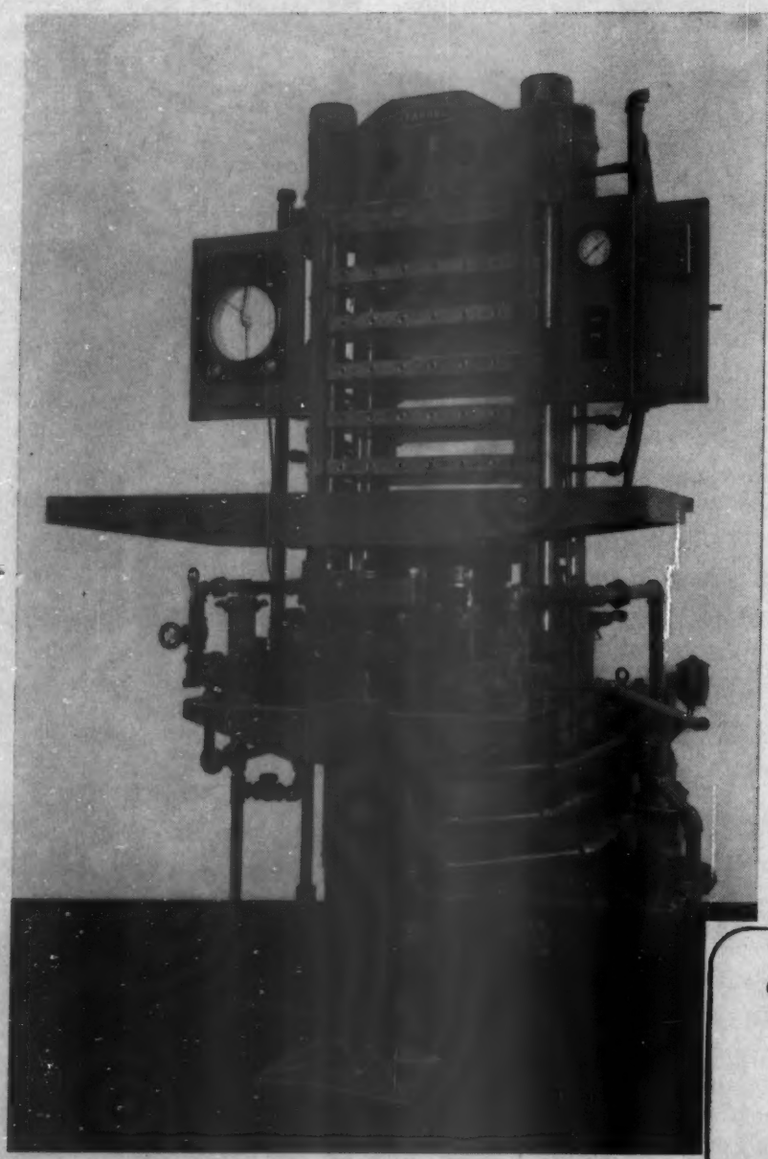
The Baldwin Locomotive Works, Philadelphia 42, Pa., U. S. A. Offices: Boston, Chicago, Cleveland, Houston, New York, Philadelphia, Pittsburgh, San Francisco, Seattle, St. Louis, Washington. In Canada: Baldwin Locomotive Works of Canada, Ltd., Toronto, Ontario.

BLW THE BALDWIN GROUP

BALDWIN

HYDRAULIC PRESSES

TAYLOR AUTOMATIC CONTROLS FEATURED ON FARREL-BIRMINGHAM MOLDING PRESS



WE'RE proud to have another equipment manufacturer select Taylor Automatic Control. Here is a heavy-duty hydraulic press, built by the Farrel-Birmingham Company of Ansonia, Conn. Those Taylor instruments on the panels attached to it have taken complete charge of its operation. Here's what happens:

1. Taylor Automatic Blow-Down Timer (right) gives intermittent release of condensation from the platens.

2. Taylor Fulscope Controller (left) automatically maintains even heat in the platens. Also "writes" a permanent, accurate chart record of temperature.

This is one more way Taylor is helping equipment manufacturers to furnish you with more efficient, more dependable rubber-making machinery. Result—you'll turn out products of the highest quality at the lowest possible cost. Always specify "Taylor-Equipped As Usual" when ordering processing equipment. Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada. *Instruments for indicating, recording and controlling temperature, pressure, humidity, flow and liquid level.*

Taylor Instruments
MEAN
ACCURACY FIRST
IN HOME AND INDUSTRY

FOR LOWER PROCESSING COSTS...
FOR IMPROVED QUALITY...

PROTOX-166*

The Surface-Coated Zinc Oxide of Proved Performance

Protox-166 is the Zinc Oxide standard of many rubber manufacturers. Since its introduction 8 years ago, this surface-coated Zinc Oxide has been widely adopted for quicker processing, better dispersion and improved rubber properties.

Protox-166 has a unique composition. Its base is Horse Head** XX-4, the standard of the industry for many decades. Its surface coating is zinc propionate, formed by special treatment with propionic acid. No other Zinc Oxide has such a base or such a coating.

Protox-166 is not an overnight development. It is the result of over 20 years' pioneering in surface treatment by the Research Laboratories of The New Jersey Zinc Company, in cooperation with the rubber industry.

Protox-166 first became commercially available in 1941, and a limited number of companies soon were taking the entire production. The war prevented increasing the capacity until 1946, but since that time more and more rubber companies have proved its performance by adopting it.

If you are not using Protox, **May We Send You Samples?**

**U. S. Patents 2,303,329 and 2,303,330* ***Reg. U. S. Patent Office*

HORSE HEAD PRODUCTS

THE NEW JERSEY ZINC COMPANY

Founded 1848

160 FRONT STREET • NEW YORK 7, N. Y.

How to Cross a Bridge

Before You Come to It

"DOC" MacGEE SAYS:

Perhaps, in most cases, people shouldn't cross their bridges before they come to them. Yet, the user of industrial solvents would certainly like to avoid a few bottlenecks, eliminate a few emergencies, solve a few problems before they raise havoc with production.

Many of these bridges you, as a user of industrial solvents, *can* cross *ahead* of time! How? By using SKELLYSOLVE in your operations.

SKELLYSOLVE is famed for its purity, uniformity, minimum of unsaturates and aromatics, close boiling ranges, and freedom from foreign tastes and odors—so it aids materially in rendering better products at lower costs!

SKELLYSOLVE is famed for its dependability of supply; time and again Skelly has made speedy delivery in emergency situations—thus you are virtually assured of having *enough* SKELLYSOLVE, *when* and *where* you want it!

SKELLYSOLVE offers you specialized assistance, both when emergencies arise and when you desire competent counsel, through trained Technical Fieldmen. They are familiar with solvent problems and applications, and are available *on call!*

Insist on SKELLYSOLVE, the product of a *pioneer* in the large scale production of various type naphthas. Yes, use SKELLYSOLVE and "cross the bridge before you come to it!" For details, write, wire, or phone us today.

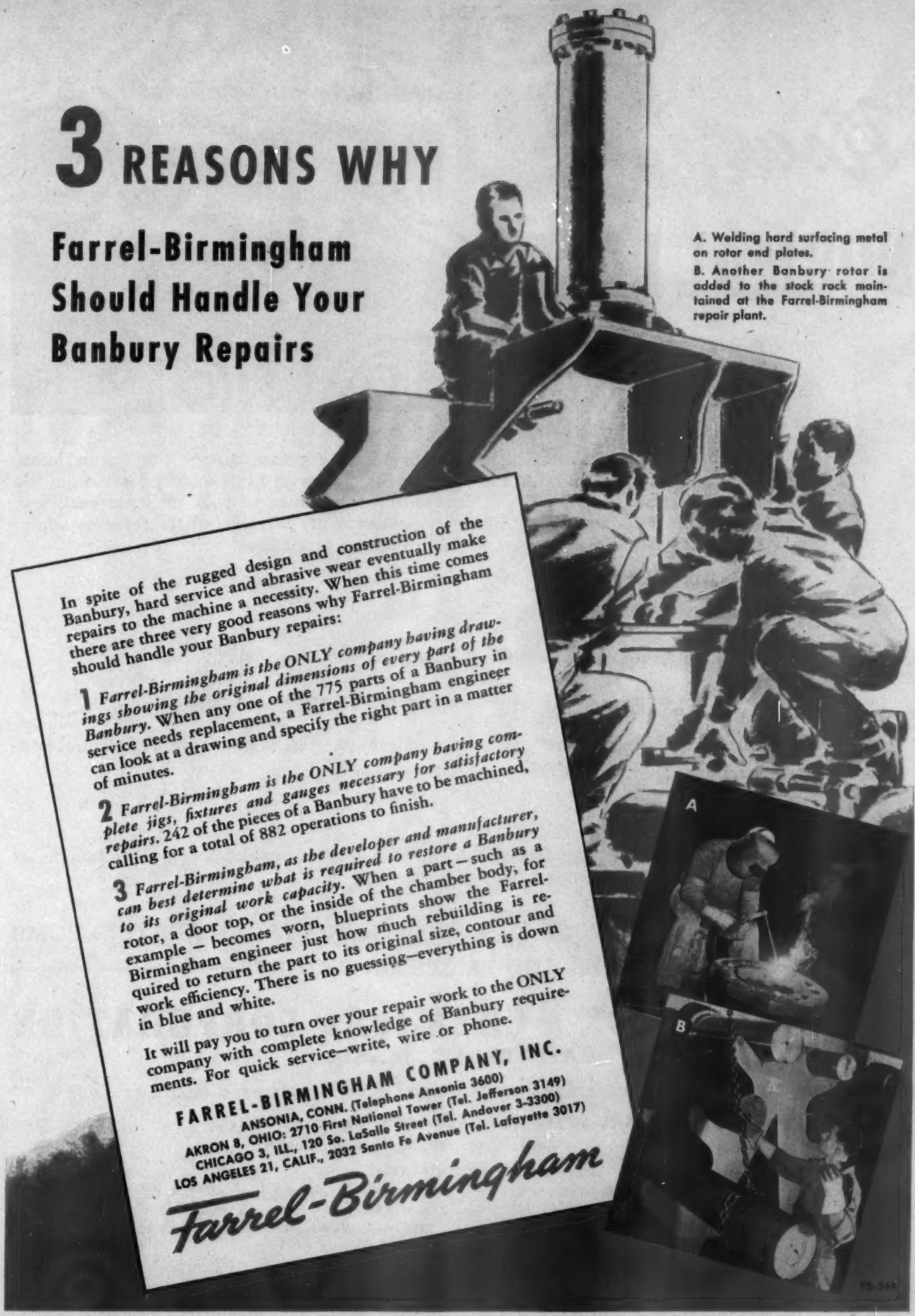
Skellysolve

SKELLY

SOLVENTS DIVISION, SKELLY OIL COMPANY, KANSAS CITY, MO.

3 REASONS WHY

Farrel-Birmingham Should Handle Your Banbury Repairs



A. Welding hard surfacing metal on rotor end plates.

B. Another Banbury rotor is added to the stock rack maintained at the Farrel-Birmingham repair plant.

In spite of the rugged design and construction of the Banbury, hard service and abrasive wear eventually make repairs to the machine a necessity. When this time comes there are three very good reasons why Farrel-Birmingham should handle your Banbury repairs:

1 *Farrel-Birmingham is the ONLY company having drawings showing the original dimensions of every part of the Banbury.* When any one of the 775 parts of a Banbury in service needs replacement, a Farrel-Birmingham engineer can look at a drawing and specify the right part in a matter of minutes.

2 *Farrel-Birmingham is the ONLY company having complete jigs, fixtures and gauges necessary for satisfactory repairs.* 242 of the pieces of a Banbury have to be machined, calling for a total of 882 operations to finish.

3 *Farrel-Birmingham, as the developer and manufacturer, can best determine what is required to restore a Banbury to its original work capacity.* When a part—such as a rotor, a door top, or the inside of the chamber body, for example—becomes worn, blueprints show the Farrel-Birmingham engineer just how much rebuilding is required to return the part to its original size, contour and work efficiency. There is no guessing—everything is down in blue and white.

It will pay you to turn over your repair work to the ONLY company with complete knowledge of Banbury requirements. For quick service—write, wire or phone.

FARREL-BIRMINGHAM COMPANY, INC.

ANSONIA, CONN. (Telephone Ansonia 3600)
AKRON 8, OHIO: 2710 First National Tower (Tel. Jefferson 3149)
CHICAGO 3, ILL., 120 So. LaSalle Street (Tel. Andover 3-3300)
LOS ANGELES 21, CALIF., 2032 Santa Fe Avenue (Tel. Lafayette 3017)

Farrel-Birmingham

Now...

NORMAL LATEX in BULK

For the first time since the war, General Latex is now importing normal latex, as well as centrifuged, in bulk and can supply you with high-quality latex from the Malayan plantations of Harrisons & Crosfield. Normal latex in bulk not only costs less per dry pound than concentrated, but possesses many physical characteristics which make it particularly desirable for compounding and processing.

For example:—

- Normal latex is more uniform in bulk than in drums.
- Fewer handling operations at the plantation make it cheaper.
- The smaller average particle size gives better dispersion and penetration.
- Anti-oxidant effect and better cure acceleration — due to retention of natural non-rubber constituents.
- Excellent stability.

Are the high solids of concentrated latex needed for your operation, or can the economies and advantages of normal latex be utilized?

NOW AVAILABLE FROM STOCK FOR SHIPMENT IN TANK CARS OR DRUMS

SAMPLES AND PRICES ON REQUEST

GENERAL LATEX & CHEMICAL CORPORATION

CAMBRIDGE, MASS.

Importers and Compounders of Natural and Synthetic Rubber Latex

GENERAL LATEX & CHEMICALS (Canada) LTD.
Verdun Industrial Building, Verdun, Montreal, Quebec

SALES REPRESENTATIVES:

525 Washington Highway, Buffalo 21, N. Y. • 347 Madison Ave., Suite 1803, New York 17, N. Y.
First National Tower, Akron 8, Ohio • 2724 West Lawrence Ave., Chicago 25, Ill.
Pennsylvania Bldg., Room 512, Philadelphia 2, Pa. • 1302 Liberty Life Bldg., Charlotte 2, North Carolina

EXPORT AGENT:

BINNEY AND SMITH COMPANY 41 East 42nd Street, New York 17, N. Y.

Exclusive agency for sale of **Harrisons & Crosfield** Malayan latex in U. S. A.

Road Tested by Cabot

Cabot cars have already been driven more than 1,000,000 tire miles under controlled road test conditions to certify the performance of this remarkable new black.

CABOT

Vulcan-3 HAF*

- *Superior Reinforcement*
- *Exceptional Abrasion Resistance*

– in "Cold" Rubber and Natural Rubber

*HIGH ABRASION FURNACE

CABOT
Reinforcing
CARBON BLACKS
FOR
RUBBER

• New: Write for "Cabot Reinforcing Blacks for Rubber"

GODFREY L. CABOT, INC.

77 FRANKLIN STREET, BOSTON 10, MASSACHUSETTS

6 BIG ADVANTAGES..

make this attachment Indispensable!

..the Akron-Standard STOCK BLENDER

Tire manufacturers testify, "Once used, never without." Handling labor is reduced. Operation is automatic until the milled stock is removed. Speed up your operation and enjoy more uniform stock production through these six features:

1. Manpower goes further. One workman can run two or more mills. No more laborious hand blending and warm-up.

2. Temperature reduced by passing compound or batch overhead. Cooler stocks permit adding accelerators without scorching.

3. Positive bank control with lower power consumption.

4. Correct milling time for every batch.

5. Less mixing time (or larger batches proportionately).

6. Uniform operation, uniform plasticity, uniform dispersion.

Ask for our 40-page Bulletin "A" describing this and many other profit-earning types of Akron-Standard equipment.

The Akron Standard Mold Co.

1624 Englewood Avenue — *"The Established Measure of Value"* — Akron 5, Ohio, U. S. A.

STOP RISING COSTS

WITH

Piccolyte

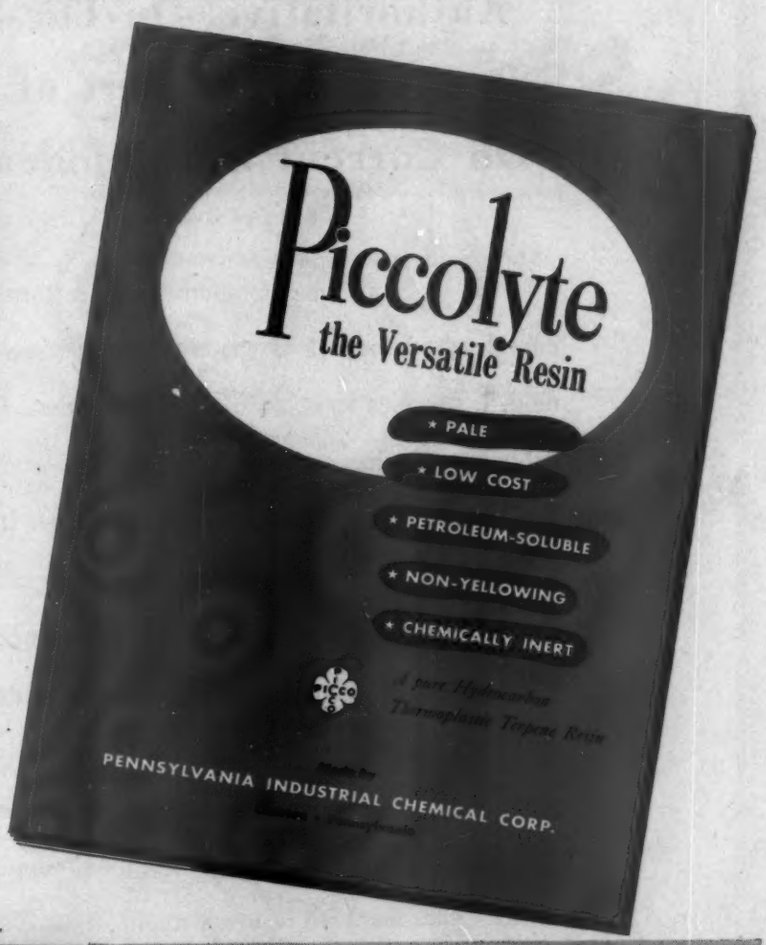
the Versatile Resin

Costs Less... Offers More!

Piccolyte—a pure hydrocarbon, thermoplastic terpene resin—is low in cost and readily soluble in low-cost naphthas, pentane and hexane. It is pale and stable in color, chemically inert, compatible with many other materials, non-toxic. There are nine melting points.

Piccolyte has the same carbon to hydrogen ratio as plantation rubber, and has excellent tack-producing properties. Ideal for rubber tile and other products where light colors and tints are demanded.

Use Piccolyte to keep your costs down without sacrificing in any way the quality of your products. Piccolyte costs less per pound today than practically all other resins, yet offers the maximum in quality and service.



Did you get your copy?

Write for this data booklet, and a free sample of PICCOLYTE. Give intended use, so we can send sample of appropriate grade.

PENNSYLVANIA
INDUSTRIAL CHEMICAL CORP.
CLAIRTON, PENNA.

Makers of Coumarone Resins • Coal Tar Solvents • Styrene Resins • Rubber Plasticizers • Reclaiming Oils • Terpene Resins • High Solvency Naphthas • Solvent Oils

Plants at Clairton, Pa. and Chester, Pa.

Distributed by
Harwick Standard Chemical Co., Akron 8, Ohio

Pennsylvania Industrial Chemical Corp.
Clairton, Pennsylvania

Please send me a free sample of Piccolyte, and your new bulletin. I wish to investigate Piccolyte for (application).....

Name.....

Company.....

Address.....

(RA)

Authoritative, On-The-Spot Reports From Every Part of the World On Current Developments In Rubber

This is a monthly service for those firms who wish to keep completely informed of current developments in the rubber commodity field. It supplies facts, opinions and forecasts from Washington and every rubber producing area in the world. Air-mail dispatches from London, Paris, Amsterdam, Malaya and the Far East. It obtains authoritative original opinions from leading rubber experts on subjects of current importance. It analyzes legislative trends and government policy developments in Washington. It summarizes the "business climate" each month. "RUBBER REPORT" is edited by Warren S. Lockwood and H. C. Bugbee. It is the most quoted and authoritative review of the month-to-month rubber situation available. Mailed to subscribers in the U. S. and twenty overseas countries on the 15th of every month from W..S. Lockwood, Inc., 1631 K Street, N. W., Washington 6, D. C.

Domestic Subscription
$300. Per Year

Overseas Subscription on Application

SILASTIC* 250

THE TOUGHEST, MOST STABLE SILICONE RUBBER EVER MADE

FROM 500° F. TO -130° F.

Over a temperature span of 630° F., Silastic 250 has:

GREATER TENSILE STRENGTH . . . PLUS GREATER TEAR RESISTANCE, GREATER ELONGATION, BETTER ELECTRICAL PROPERTIES THAN ANY OTHER RUBBER-LIKE MATERIAL

SILASTIC 250

WITH GREATLY IMPROVED MECHANICAL STRENGTH

- tensile strength times elongation is increased by a factor of 2 to 6
- tear resistance is increased by a factor of 3

IMPROVED DIELECTRIC PROPERTIES

- dielectric strength ---------- 700-900 volts per mil
- dielectric constant
  - at 100 cycles per second ---------- 3.1
  - at 1,000,000 cycles per second ---------- 3.0
- power factor
  - at 100 cycles per second ---------- 0.2%
  - at 1,000,000 cycles per second ---------- 0.8%

PLUS LOWER COST

- specific gravity of only 1.1 to 1.3 gives you 25 to 75% more parts per pound of stock.

OPENS UP THOUSANDS OF NEW APPLICATIONS

- in the aircraft industry, automotive industry, process industry, electrical and electromotive industries.

Wherever good mechanical strength and good dielectric properties are required at temperatures far above and below the limits of any other rubber-like material.

*Trademark registered U. S. Patent Office

Call our

Dow Corning

FIRST IN SILICONES

NOW

A MORE STABLE, MORE ECONOMICAL SILICONE MOLD RELEASE EMULSION BY THE MOST EXPERIENCED PRODUCER OF SILICONE RELEASE AGENTS FOR THE RUBBER INDUSTRY

DOW CORNING MOLD RELEASE EMULSION Nº 35-A

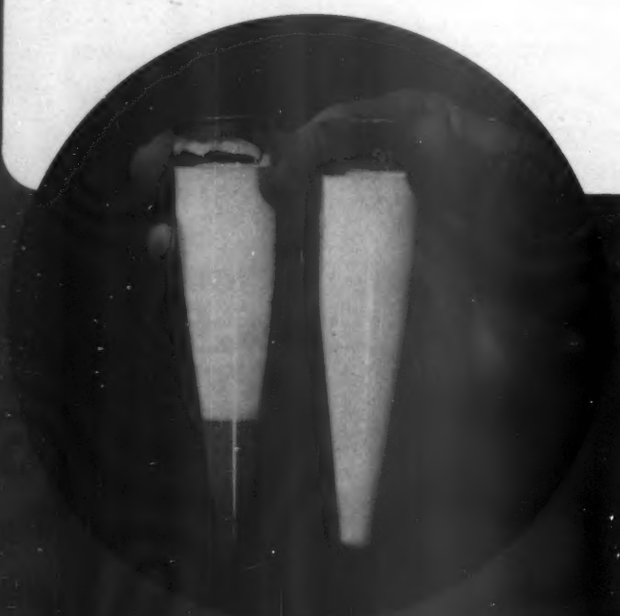
GIVES GREATER STABILITY IN USE AND IN STORAGE, GREATER STABILITY IN CONTACT WITH HARD WATER

Leading rubber companies report that the new DC Mold Release Emulsion No. 35A:

- **GOES FARTHER** . . . freedom from creaming makes it easier to maintain a more uniform concentration in the press room.
- **MIXES READILY** even with hardest water.
- **STABLE IN CONTACT WITH METALS:** DC Mold Release Emulsion No. 35A does not separate in contact with galvanized tanks or pipes.

Use DC Mold Release Emulsion No. 35A

- **FOR GREATER STABILITY**
- **FOR GREATER ECONOMY**
- **FOR EASY RELEASE** from even the most complicated molds
- **FOR CLEAN MOLDS** that stay clean 5 to 20 times longer
- **FOR BETTER SURFACE FINISH**
- **FOR FEWER REJECTS** due to non-knits, fold-overs, torn heats



← Unlike other silicone emulsions, DC Mold Release Emulsion No. 35A (at right) does not cream or separate even after standing in a centrifuge at 2625 r.p.m. (765 times the pull of gravity) for 6 minutes.

For more information

call our nearest branch office or write for technical data Form No. MR2 V6

DOW CORNING CORPORATION · MIDLAND, MICHIGAN

Dow Corning

FIRST IN SILICONES

How Marvinol® Vinyl Resin improves these products... speeds up their production

MARVINOL VINYL RESINS have proved their advantages under severest testing conditions. To products such as these, they give extra toughness and dryness, superior dimensional stability, greater flexibility at low temperatures. In rigid, semi-rigid and elastomeric formulations, Marvinol VR-10 is paying manufacturers by increasing product quality and speeding up processing.

Marvinol processes faster because it offers you shorter pre-mix, open mill and Banbury cycles...faster extrusion cycles. Marvinol is extruded to make tough, chemical and abrasion resistant continuous cross-sectional shapes... calendered into sheets and free films where its tear resistance, flexibility and dryness pay big dividends...adaptable to rapid cooling methods in injection molding...dispersed to make excellent film, coatings and slush molded pieces.

Test this remarkable vinyl polymer. Send for details about Marvinol. While The Glenn L. Martin Company does not compound or fabricate in the plastics field, we do sell raw materials to processors and will be glad to refer you to one of our customers if you're interested in Marvinol. Write today to Chemicals Division, Dept. R-6. THE GLENN L. MARTIN COMPANY, BALTIMORE 3, MARYLAND.

MANUFACTURERS OF: Dependable Martin 2-0-2 airliners • Advanced military aircraft • Revolutionary rockets and missiles • Electronic fire control systems • Versatile Marvinol resins (Martin Chemicals Division) **DEVELOPERS OF:** Mareng fuel tanks (licensed to U.S. Rubber Co.) • Stratovision aerial re-broadcasting (in conjunction with Westinghouse Electric Corp.) • Honeycomb construction material (licensed to U.S. Plywood Corp.) • New type hydraulic automotive and aircraft brake • Permanent fabric flameproofing. **LEADERS IN RESEARCH** to guard the peace, build better living in far-reaching fields.

Martin®

RESINS, PLASTICIZERS AND STABILIZERS PRODUCED BY THE CHEMICALS DIVISION OF

Marvinol®

THE GLENN L. MARTIN COMPANY • AN INTERNATIONAL INSTITUTION

"BETTER PRODUCTS, GREATER PROGRESS, ARE MADE BY MARTIN"

NATIONAL-STANDARD *braided wire braid*

makes steam hose *tougher*

simplifies production

HERE'S a suggestion that might help you improve the strength and life of your hose, while reducing production costs! Simply weigh carefully *all* the advantages you stand to gain by using National-Standard flat braided wire braid in your hose construction.

For example, flat braided wire braid eliminates the problem of single wire breaks and uneven loops. You save the time and material normally lost in attempting to equalize wire length and tension for uniform stress distribution. Production is greatly simplified. Quality can be better controlled . . . with fewer seconds and rejects. Moreover, unequaled mechanical adhesion prolongs hose life and eliminates a frequent cause of failure.

Why not talk it over with a National-Standard engineer? As usual, National-Standard is ready to give you all the help you want . . . all the benefit of over 40 years of intimate experience with wire-in-rubber problems.

NS NATIONAL-STANDARD Company NILES, MICHIGAN

DIVISIONS OF NATIONAL-STANDARD CO.

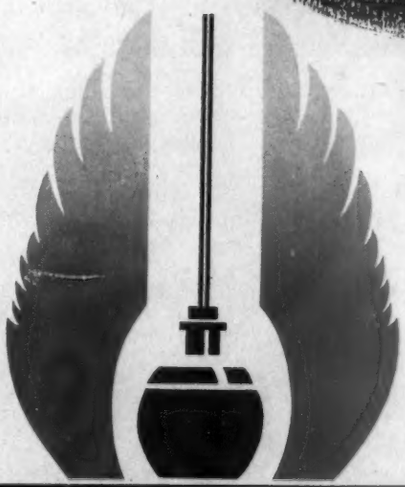
ATHENIA STEEL	*Clifton, N. J.*	Flat, High Carbon, Cold Rolled Spring Steel
NATIONAL-STANDARD	*Niles, Mich.*	Tire Wire, Fabricated Braids and Tape
WAGNER LITHO MACHINERY	*Jersey City, N. J.*	Lithographing and Special Machinery
WORCESTER WIRE WORKS	*Worcester, Mass.*	Round Steel Wire, Small Sizes

THE
ONE AND ONLY
SUPPLIER OF

PARA-FLUX®

® Registered Trade Mark of the C. P. Hall Co.

IS THE
C. P. Hall Co.



Since 1925 The C. P. Hall Co. has supplied the rubber industry with PARA-FLUX.® Many substitutes have appeared on the market since that time, but PARA-FLUX® continues to be the standard softener and plasticizer for the rubber industry.

The C. P. Hall Co.
CHEMICAL MANUFACTURERS

AKRON, OHIO
LOS ANGELES, CALIFORNIA
CHICAGO, ILLINOIS
SAN FRANCISCO, CALIFORNIA

Size and shape of pigment particles important factor in behavior of rubber products

Through constant research on its basic products, Witco endeavors to increase the available knowledge concerning the behavior of rubber-like polymers from the familiar natural product to the newest of the low temperature synthetics.

Fundamental research has shown that among the important factors determining the behavior of rubber products is the size and shape of the pigment particles used in the compound.

In the case of carbon black, the particles appear to be aggregates or chains of spherical or ellipsoidal units, such as shown in the accompanying electron micrographs. The size of these units in a carbon black is closely connected with the tensile, tear, tint and re-bound of the rubber compounded with the black. The shape of the chain-like particles is related to the stiffening effect of the black, that is, to the modulus and hardness of the cured compound.

Technical Service Report CB-1 gives the results of this research project in greater detail. A copy is yours for the asking. Simply use the coupon below.

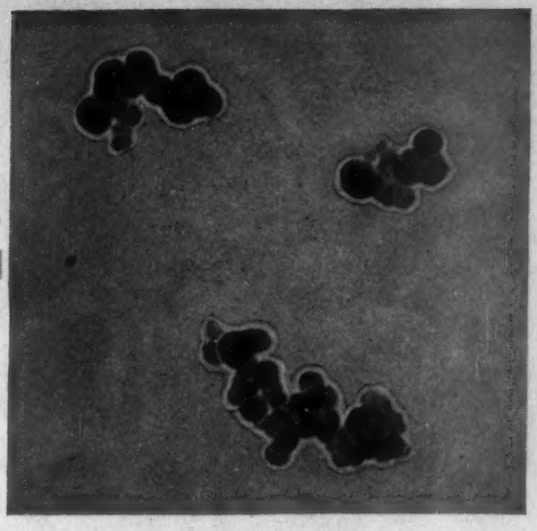
YOU KNOW THAT WITCO MAKES HIGHEST QUALITY PRODUCTS

WITCO CHEMICAL COMPANY

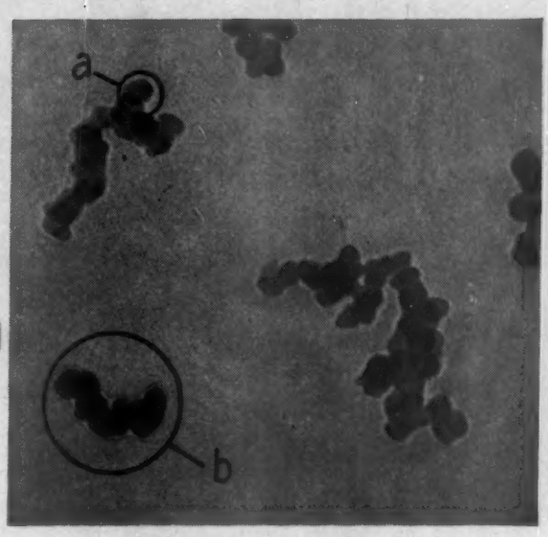
CONTINENTAL CARBON COMPANY

295 Madison Avenue, New York 17, N. Y.

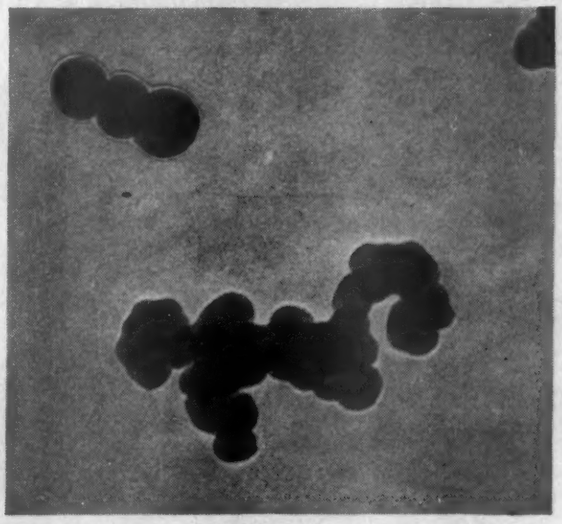
BOSTON, CHICAGO, DETROIT, CLEVELAND, LOS ANGELES, SAN FRANCISCO, AKRON, AMARILLO, LONDON & MANCHESTER, ENG.



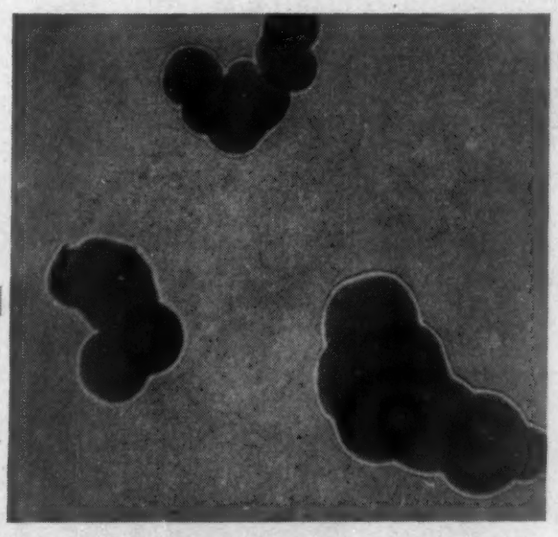
Continental A – Witco No. 1
Average ellipsoidal unit diameter, millimicrons.....27
Specific surface area, square meters per gram.....89
Average shape factor.....5.9



Continental AA – Witco No. 12
Average ellipsoidal unit diameter, millimicrons.....33
Specific surface area, square meters per gram.....70
Average shape factor.....7.1



Continex HMF
Average ellipsoidal unit diameter, millimicrons.....60
Specific surface area, square meters per gram.....36
Average shape factor.....6.0



Continex SRF
Average ellipsoidal unit diameter, millimicrons.....98
Specific surface area, square meters per gram.....23
Average shape factor.....6.4

WITCO CHEMICAL COMPANY
Technical Service Department
295 Madison Avenue, New York 17, N. Y.

Please send me a copy of Technical Service Report CB-1.

Name_____

Company_____ Position_____

Address_____

R6

AMOREZ 11-190

A low cost high iodine number petroleum-derived hydrocarbon resin useful as a rubber processing aid.

SPECIFIC GRAVITY	1.044
WEIGHT, PER GAL.	8.704
COLOR, BARRETT	26 max.
SOFT. POINT, R & B	°F 190
IODINE NO., WIJS	200

Available now in any quantity at 4c per lb. F.O.B. Texas City

PANAFLEX BN-1

An economical light-colored hydrocarbon plasticizer outstanding in its ability to impart superior electrical properties to synthetic rubber. Panaflex BN-1 is a complete replacement for dibutyl phthalate as a plasticizer in GR-A rubber.

SPECIFIC GRAVITY	0.9440
WEIGHT PER GAL.	7.870
COLOR, SAYBOLT	1½
DISTILLATION	°F 560-730
REFRACTIVE INDEX	1.553

Available now in tank car quantity at 18c per lb. delivered east of Rocky Mountains.

PAN AMERICAN *Chemicals*
DIVISION
Pan American Refining Corp.
122 East 42nd Street • NEW YORK 17, N. Y.
PLANT: Texas City, Texas

BRATEX

is Laboratory Controlled to Maintain *Superior Quality*

Superior surface gloss, uniform caliper, tightly filled, minimum surface load, non-flaking, pliable, peels off clean — these are the all important qualities that make BRATEX preferred for all types of hot and cold cure processing of Rubber Sheeting and Products.

Three standard qualities. 20 and 40 inches wide, in 100 and 250 yard rolls. Special size rolls to order.

Write for Samples and Prices

The HOLLISTON MILLS, INC.
Norwood Massachusetts

CHAMPION PIONEERED an Idea..

NOW A PROVED SAVING . . .

- CUTS UNLOADING COSTS and TIME . . .
- SIMPLIFIES SUBSEQUENT HANDLING . . .
- MINIMIZES BAG BREAKAGE . . .
- REDUCES INVENTORY COUNTS . . .
- PERMITS USE OF STANDARD FORK TRUCK EQUIPMENT . . .

★

FOR THE BEST IN CLAY Specify CHAMPION

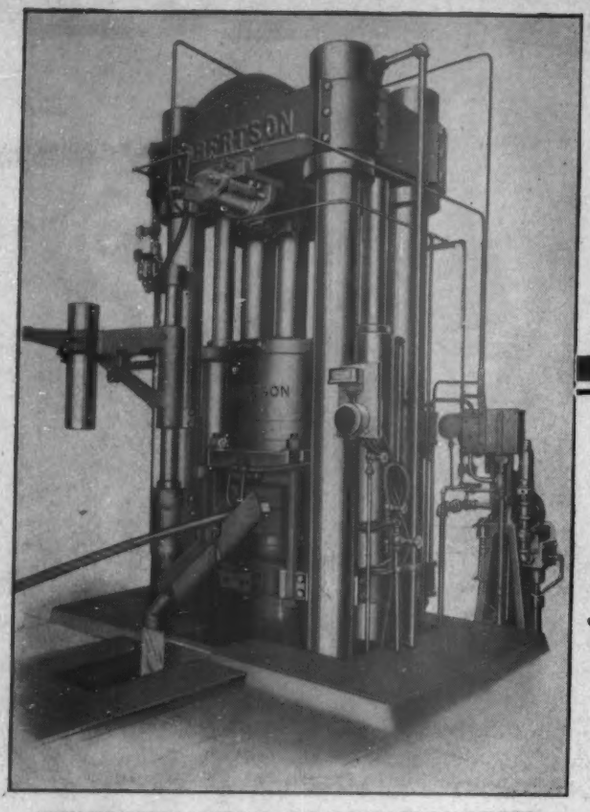
★ *Manufactured by*
★ **National**
★ **Kaolin**
★ **Products Co.**

Since CHAMPION pioneered the idea of shipping clay on EXPENDABLE PALLETS a few months ago more than 150 car loads have been delivered to prove the value of this innovation in clay handling . . . Truly this idea assures real economy in the delivery of the fine, uniform light-colored clay that is mined and processed with extra care by the National Kaolin Products Company at Aiken, South Carolina.

HARWICK STANDARD CHEMICAL CO.

AKRON 8, OHIO

BRANCHES: BOSTON, TRENTON, CHICAGO, LOS ANGELES

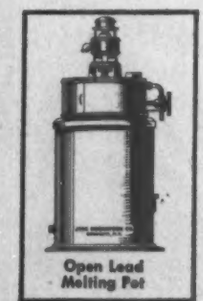


ROBERTSON HOSE LEAD ENCASING PRESS

"ENTERPRISE"—The American yacht that defeated Sir Thomas Lipton's Shamrock V to win the America Cup Races, 1930.

"Custom-Built"

Like the famed *Enterprise* that was "custom-built" to win the America Cup Race, Robertson's Hose Lead Encasing Presses are "tailored" to the requirements of individual rubber hose manufacturers. Robertson engineers thoroughly examine all aspects of the installation—then the presses are carefully "custom-engineered" for the specific job. Well known firms like U. S. Rubber, Goodrich, Goodyear, Gates, DeVilbiss, Dunlap, Dominion Rubber, Swan Rubber, The Thermoid Company, Hewitt Robins and the Boston Woven Hose Company use Robertson Equipment to help turn out a goodly percentage of the world's fine rubber hose. . . . This is a tribute to Robertson's 90 years' experience in one line of work: producing fine high pressure hydraulic equipment.



Open Lead Melting Pot

Lead Sheath Stripping Machine

JOHN Robertson

COMPANY INCORPORATED

135 WATER STREET, BROOKLYN 1, NEW YORK

Designers and Builders of all Types of Lead Encasing Machinery

Since 1858

CARBON BLACKS

UNITED CARBON COMPANY, INC.

CHARLESTON 27, W. VA.

NEW YORK • AKRON • CHICAGO • BOSTON

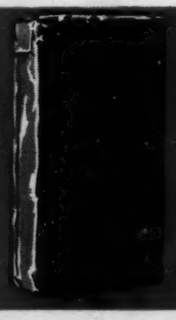
United Blacks

DIXIE 20

DIXIE 20—An SRF type carbon black, possesses perfect balancing of all component properties essential to satisfactory rubber performance; outstanding for ease of processing, good plasticity, fast rate of cure, high resiliency, and low heat build-up.

DIXIE 40

DIXIE 40—An HMF type carbon black with these properties—cool mixing, smooth and rapid extrusion, fast rate of cure, high resistance to cut-growth, flex cracking and abrasion. Produced by a special process. This furnace type black is especially useful for tires, tubes, footwear, and mechanical goods.



DIXIE 50

DIXIE 50—An HMF oil base furnace black specially developed as a processing aid for channel black, inducing smooth, fast and clean cut extrusion, low and even shrinkage, and its stocks have clean edges and no surface roughness. DIXIE 50 requires no added acceleration at increased black loadings and gives higher reinforcement at lower loadings. Is economical for stock where extreme resistance to abrasion is not mandatory.

DIXIE 60

DIXIE 60—An RF oil base furnace black, specially developed to deliver remarkably high reinforcement and superior resistance to abrasion and to flex crack cut-growth. DIXIE 60 is a guide to rapid, smooth extrusion and low shrinkage, and requires no added acceleration at increased black loadings. DIXIE 60 provides high electrical conductivity.

UNITED CARBON COMPANY, INC.

CHARLESTON 27, W. VA.

NEW YORK • AKRON • CHICAGO • BOSTON

For vital statistics on rubber

Subscribe to the

"RUBBER STATISTICAL BULLETIN"

Issued monthly, the RUBBER STATISTICAL BULLETIN is published by the Secretariat of the Rubber Study Group. This group, with headquarters in London, is the international organization which was established to collect statistical and other general information on rubber. Regular statistics are furnished by the numerous governments cooperating in the program, with the result that the figures appearing in the BULLETIN are the nearest approach to world-wide official figures.

Each issue of the BULLETIN is replete with up-to-the-minute world-wide data on the production, exports, imports, consumption and stocks of rubber. Over 55 separate tables are used to enable the user to locate specific information on any phase of the rubber picture. Each issue is divided into 8 separate sections, as follows: Natural Rubber, Natural Latex, Synthetic Rubber, Synthetic Latices, Natural and Synthetic Rubber, Reclaimed Rubber, Rubber Manufactures, and General.

The data furnished in the BULLETIN is of utmost importance to all rubber manufacturers as well as to Brokers, Dealers, Importers and Commodity houses of all kinds. Specimen copies will be furnished without charge on request.

Annual Subscription—$5.00 per year

New and Renewal Subscriptions in the United States may be sent to

RUBBER AGE

250 West 57th Street New York 19, N. Y.

RUBBER AGE is the exclusive authorized distributor in the United States for the RUBBER STATISTICAL BULLETIN.

HUBER

Modulex (HMF)

. . . one way to cut costs

Modulex at 5¢ a pound* is an economical and practical alternate for the more expensive blacks in certain formulations.

In tire carcasses it produces an excellent balance between smooth processing, good reinforcement, and low heat generation—at a very attractive cost. Similarly, in competitive grades of tire treads and camelback, it offers economy with minimum loss in wear.

Compare it now!

**(carloads, domestic, bags, f.o.b. Borger, Texas)*

J. M. HUBER CORPORATION, *342 Madison Avenue, New York 17, N. Y.*

Manufacturers of

HUBER

WYEX (EPC)
MODULEX (HMF)
ESSEX (SRF)
SUPREX CLAY
PARAGON CLAY
RUBBER CHEMICALS

RUBBER AGE

One of the World's Outstanding Rubber Journals

VOLUME 65
NUMBER 3

M. E. LERNER
Editor

B. J. KOTSHER
Associate Editor

JOSEPH H. JACOBSON
Production Manager

HARRIET K. COLE
Circulation Manager

CHARLES T. JANSEN
Advertising Manager

LOIS S. HOPKINS
Asst. to Advertising Manager

PETER P. PINTO
General Manager

CONTENTS FOR JUNE, 1949

Compounding of Natural Rubber with a New Fine Particle Silica—*By E. M. Allen, F. W. Gage and Ralph F. Wolf* 297

How Schacht Rubber Reduced Fuel Operating Costs and Secured Uniform Operating Temperature—*By A. R. Brandt* 304

Compression Set of Nitrile Rubbers as Affected by Compounding—*By C. G. Cashion* 307

Method of Improving Deck Coverings with Latex 312

●

REGULAR DEPARTMENTS

Book Reviews	344	Los Angeles News	334
Canadian News	335	Names in the News	320
Chemical Prices	352	New Equipment	338
Classified Ads	362	New Goods	331
Coming Events	318	Obituaries	336
Editorials	313	Rubber, Cotton Markets	350
Financial News	330	Statistics	*

* Appears every other month

●

Published on the 15th of each month by

PALMERTON PUBLISHING COMPANY, INC.

Printing Office,
East Stroudsburg, Pa.

Editorial and Advertising Offices,
250 West 57th St., New York 19, N. Y.

New England Representative—F. ROYAL CAREY, P.O. Box 133, Providence, R.I.
Western Representative—IRVING V. KOCH, 64 East Lake St., Chicago 1, Ill.
News Correspondents—A. L. PICKARD, c/o Braun Corporation, 2260 East 15th St., Los Angeles 21, Calif. PHIL GLANZER, Tivoli Theatre Bldg., Toronto 1, Canada.

Entered as Second Class Matter, October 20, 1933, at the Post Office at East Stroudsburg, Pa., under Act of March 3, 1879. Subscription Rates: Domestic, $3.00 a year; Canada, $3.50; Foreign, $4.00. Single copies up to 3 months old, 35 cents; over 3 months old, 50 cents. Telephone COlumbus 5-2923, 5-2924.

Contents Copyrighted 1949 by the Palmerton Publishing Company, Inc.

Indexed in Industrial Arts Index and Engineering Index. OFFICERS: P. L. Palmerton, President; E. D. Osborn, Vice-President and Secretary; Peter P. Pinto, Treasurer.

Also Publishers of:

RUBBER RED BOOK
Directory of the Rubber Industry Published Biennially

ANNUAL BIBLIOGRAPHIES OF RUBBER LITERATURE
Compiled by D. E. Cable, Ph.D. For Years 1935-1939

LATEX IN INDUSTRY (Out of Print)
By Royce J. Noble, Ph.D.
Text Book on Latex

LATEX AND ITS INDUSTRIAL APPLICATIONS (Vol. I) (Out of Print)
By Frederick Marchionna
Bibliography of latex patents and literature to June, 1932.

LATEX AND RUBBER DERIVATIVES AND THEIR INDUSTRIAL APPLICATIONS (Vols. II & III)
By Frederick Marchionna
Bibliography of latex patents and literature from June, 1932, to January, 1937; rubber derivatives to January, 1937.

use KRALAC·A

A High-Styrene Copolymer Resin for the General Improvement of Natural and Synthetic Rubber Products

WITH

- **NATURAL RUBBER**
- **GR-S, ALL TYPES**
- **ACRYLONITRILE RUBBERS**
- **NEOPRENE**

WHY

To increase hardness without excessive pigment loading and loss of physical properties

To produce "hard-rubber" type stocks

To improve abrasion, without lowering flex-cracking resistance

WHERE

- Soles and Heels
- Molded "hard-rubber" products
- Footwear Parts
- Tiling or Decorative Panels
- Mechanical Goods
- Cutting Pads

Write for new KRALAC·A Compounding Research Report

PROCESS · ACCELERATE · PROTECT with NAUGATUCK CHEMICALS

NAUGATUCK CHEMICAL

Division of United States Rubber Company

1230 AVENUE OF THE AMERICAS · NEW YORK 20, N. Y.

IN CANADA: *Naugatuck Chemicals Division, Dominion Rubber Co., Elmira, Ont.*

RUBBER AGE

Vol. 65, No. 3 JUNE, 1949

Compounding of Natural Rubber with a New Fine Particle Silica

By E. M. ALLEN, F. W. GAGE, and RALPH F. WOLF

Columbia Chemical Division, Pittsburgh Plate Glass Co., Barberton, Ohio

NEW, previously unobtainable, high levels in the physical properties of all kinds of non-black rubber goods can now be achieved through use of Hi-Sil, the first practical fine particle silica pigment offered to the rubber industry at a reasonable price.

Hi-Sil has been under constant development in the research laboratories of the Columbia Chemical Division of the Pittsburgh Plate Glass Company since discovery of a means of producing extremely fine, almost amorphous, silicas by one of the present authors, E. M. Allen. It is a hydrated silicon dioxide having a particle size of .025 micron as measured by the electron microscope. This particle size is equal to that of easy process channel black. The specific gravity is 1.95, lower than that of most silicas because of the presence of water of hydration.

Practical Non-Black Pigment

Hi-Sil imparts high tensile strength, good abrasion resistance and exceptional tear resistance to natural and synthetic rubber compounds. It is believed to be the best practical non-black pigment offered to rubber compounders up to this time.

Silica pigments have had considerable publicity during the past few years but in general have been high priced and relatively unavailable. As a consequence, rubber compounders could not be blamed for assuming that they are laboratory curiosities, suitable for research work in studies of reinforcement, but of little interest to men trying to turn out great quantities of the best rubber goods they know how to make.

In respect to its abundance in nature there are few compounds that outrank silica. Instead of regarding fine silica as a laboratory freak, rubber men should regard it as some of the best insurance they have against future scarcity or high cost of the fine black pigments on which the industry is largely dependent at present.

When silica is used as a raw material, no question is raised about the destruction of irreplaceable natural resources. Even the most ardent conservationist feels none of the qualms concerning sand that assail him when he views the ever increasing consumption and diminishing supplies of such things as gas and oil.

The high price of previous silica pigments has been due to the fact that they were based on complicated processes or expensive raw materials. Compared to these, Hi-Sil is a cheap material and will become even cheaper with increased volume of production.

TABLE I—EFFECT OF VARIOUS THIAZOLES IN COMBINATION WITH 0.25 PART TMTDS ON CURE OF NATURAL RUBBER STOCK LOADED WITH 30 VOLUMES OF HI-SIL

Thiazole	*Amount*	*Cure at 287°F. Min.*	*300% Mod.*	*Tensile*	*Hardness*	*Tear Lbs./in.*
Acrin	1.0	2.5	1550	3950	71	650
	0.8	2.5	1400	3700	66	500
	0.6	2.5	1375	3400	67	270
BJF	1.0	5.0	1300	3600	70	650
Cuprax	1.0	5.0	1750	4025	75	740
Erie	1.0	5.0	1325	3250	71	300
Ethylac	1.0	5.0	1900	4025	76	760
	0.8	5.0	1675	4000	79	740
	0.6	5.0	1500	3950	72	650
MBT	1.0	2.5	1450	4000	71	700
	0.8	2.5	1300	3500	66	570
	0.6	2.5	1275	3350	66	540
MBTS	1.0	5.0	1450	3850	72	650
	0.9	5.0	1350	3700	70	550
	0.8	5.0	1400	3675	70	550
Santocure	1.0	5.0	1300	3265	70	650
	0.9	5.0	1225	3600	66	550
	0.8	5.0	1250	3450	65	470
Ureka C	1.0	5.0	1450	3800	70	600
	0.8	5.0	1250	3500	66	550
	0.6	5.0	1225	3200	65	300
Zenite	1.0	2.5	1300	3300	70	220

TABLE II — EFFECT OF DECREASING AMOUNT OF TMTDS USED WITH ETHYLAC OR MBTS IN CURING NATURAL RUBBER STOCK LOADED WITH 30 VOLUMES OF HI-SIL

Thiazole		*TMTDS*	*Cure at 287°F. Min.*	*300% Mod.*	*Tensile*	*Hardness*	*Tear Lbs./in.*
Ethylac	0.8	0.25	5	1600	3900	69	600
	0.8	.15	5	1475	3550	69	600
	0.8	.10	5	1350	3350	69	350
	1.0	.10	5	1450	3600	71	650
MBTS	0.9	.25	5	1300	3500	63	500
	0.9	.15	40	1250	2975	69	230
	0.9	.10	60	1300	3000	72	240
	1.2	.10	40	1250	2950	71	250

TABLE III—SCORCH RATES OF 30 VOLUME HI-SIL LOADED NATURAL RUBBER STOCKS ACCELERATED WITH COMBINATIONS OF VARIOUS THIAZOLES AND TETRAMETHYL THIURAM DISULFIDE

Recipe (Parts by Weight)

Smoked Sheets	100.
Hi-Sil	57.
Zinc Oxide	5.
Phenyl-beta-naphthylamine	1.
Sulfur	3.
Thiazole	1.
TMTDS	0.25
Stearic Acid	3.

Thiazole	*Scorch Time*
MBTS	21.3 Minutes
Santocure	18.5
Cuprax	17.8
MBT	16.5
Ureka C	15.2
BJF	11.0
Ethylac	10.3
Acrin	5.7

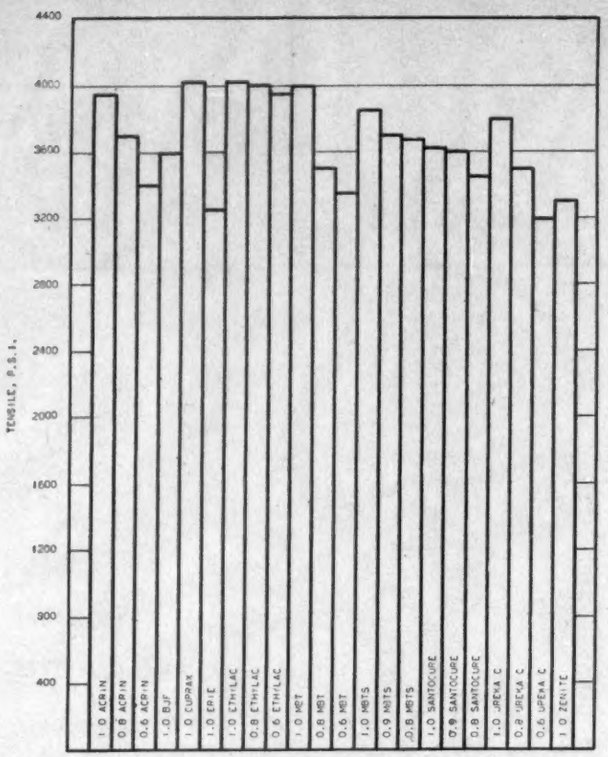


FIG. 1—Comparison of optimum tensile values of natural rubber stocks loaded with 30 volumes of Hi-Sil and cured with various thiazoles in combination with 0.25 part TMTDS.

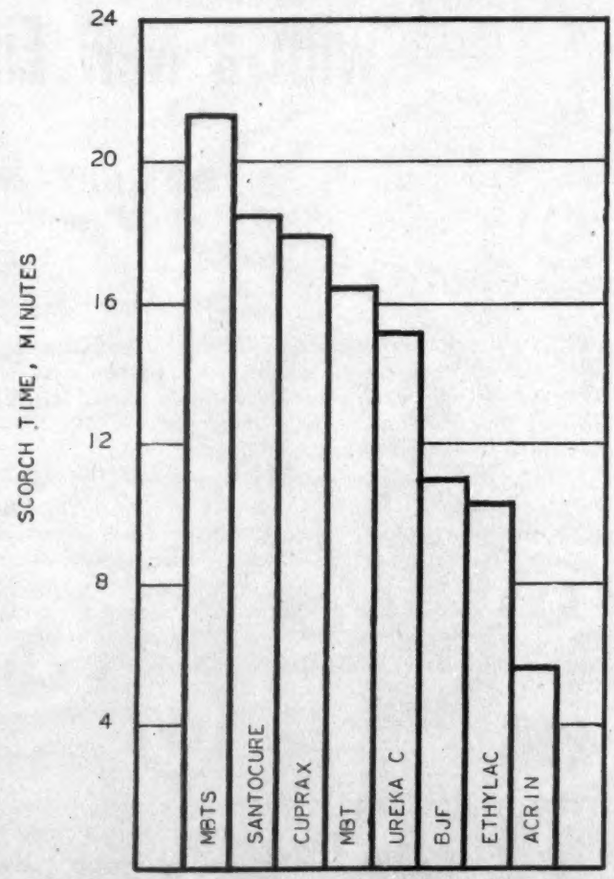


FIG. 2—Comparison of scorch rates of 30 volume Hi-Sil loaded natural rubber stocks accelerated with combinations of various thiazoles and 0.25 part TMTDS.

As part of the Hi-Sil development program, the material has been thoroughly tested, both on laboratory and factory scale, in products from most of the classes of rubber goods manufacture. Commercial production of Hi-Sil began in April of this year and it is now available to compounders in quantity. Part of the present output is being used in new types of rubber articles whose production would not have been possible without this new pigment. Announcement of these items is expected to be made by the manufacturers some time this summer. The remainder is going into established lines where improved quality was sought. An expansion, which is already underway, will increase the capacity of the present plant by several times and insure availability of plenty of material as new outlets develop.

Broad Range of Applications

Hi-Sil should be of particular interest to compounders in any natural rubber, GR-S, neoprene or nitrile rubber application where physical properties approaching those of a black stock are required in a light colored compound. It also reinforces vinyl resins which is something no other pigment except the fumed silicas will do. The present paper will deal only with the properties it imparts to natural rubber. Subsequent papers will describe its use in other elastomers.

Due to its fine particle size and great surface area, Hi-Sil is an extremely adsorptive material. Consequently, there are two points in particular that must be kept in mind when compounding Hi-Sil loaded natural rubber stocks: (1) Hi-Sil stocks require more than the normal amount of acceleration; and (2) Depending on the quality of the natural rubber used, a Hi-Sil stock may require more than one part of fatty acid.

TABLE IV—EFFECT OF VARIOUS VOLUME LOADINGS OF HI-SIL ON PHYSICAL PROPERTIES OF A NATURAL RUBBER STOCK

Recipe
(Parts by Weight)

Smoked Sheets	100.
Hi-Sil	As shown
Zinc Oxide	5.
Phenyl-beta-naphthylamine	1.
Sulfur	3.
MBTS	1.
TMTDS	0.25
Stearic Acid	3.

Volumes Hi-Sil	*Opt. Cure 287°F.*	*Mod. 300%*	*Tensile*	*Elongation*	*Hardness*	*Tear Lbs./in.*	*Williams Plast.*	*Williams Rec.*
10	15	675	4700	650	55	360	1.95	0.10
15	15	750	3975	625	54	330	2.45	0.15
20	15	875	3950	600	59	400	2.90	0.20
25	10	950	3925	625	57	520	3.20	0.30
30	10	1200	3700	600	65	560	3.75	0.20
35	10	1225	3325	575	64	500	4.10	0.30

Hi-Sil stocks containing what would be considered normal amounts of acceleration are very slow curing. For example, a natural rubber stock containing 30 volumes of Hi-Sil will require at least a two hour cure when a single accelerator is used, such as 1.5 parts of a guanidine, or 1 part of an aldehyde amine or thiazole, or 0.5 part of a thiuram or dithiocarbamate.

Fortunately, in the early stages of the development of Hi-Sil, it was found that very fast cures could be obtained by use of combinations of a thiazole primary accelerator with a thiuram secondary accelerator. A number of thiazoles, in varying amounts, were tested in combination with 0.25 part of tetramethyl thiuram disulfide in the following recipe (parts by weight):

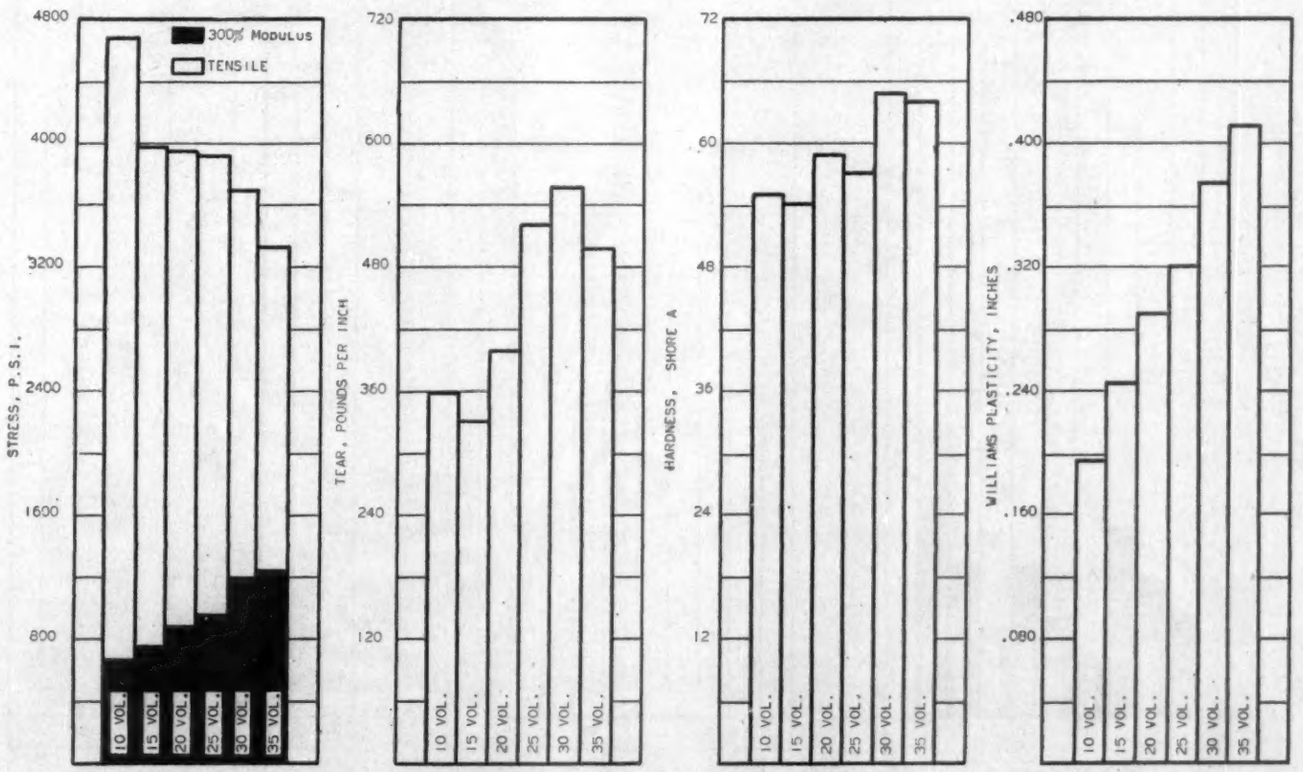


FIG. 3—Stress-strain, tear resistance, hardness and Williams plasticity of natural rubber stocks containing various volume loadings of Hi-Sil.

TABLE V—COMPARISON OF STRESS-STRAIN, TEAR RESISTANCE AND HARDNESS OF HI-SIL, SILENE EF AND EPC BLACK IN 10, 20 AND 30 VOLUME LOADINGS

Pigments	Loading (Volumes)	Cure at 287°F. (Min.)	300% Mod.	Tensile	Elongation	Durometer Hardness	Tear Lbs./in.
Hi-Sil	10	13	400	3625	665	42	480
		15	675	4700	640	55	410
		20	775	4200	590	58	270
		30	725	3450	555	58	220
	20	12	250	1825	610	45	220
		15	875	3850	600	59	420
		20	875	3650	590	60	290
		30	775	3475	610	59	330
	30	7.5	675	2250	575	55	290
		10	1200	3725	585	65	560
		15	1250	3450	575	67	540
		20	1100	3200	585	66	510
		30	1050	3000	585	66	500
Silene EF	10	5	50	450	740	35	30
		7.5	325	4125	725	48	270
		10	350	4125	720	49	300
		15	325	4100	730	49	330
		30	300	3750	740	49	210
	20	3	150	1025	680	42	70
		5	550	3625	670	53	440
		7.5	575	3700	660	54	410
		10	625	3725	660	54	400
		15	525	3600	675	54	380
	30	3	450	1900	595	54	90
		5	875	2900	570	59	370
		7.5	950	2800	550	61	390
		10	950	2950	550	61	400
		15	950	2800	535	61	390
EPC	10	15	275	3425	750	45	250
		30	450	4000	685	49	350
		45	550	4150	670	51	380
		60	550	3800	645	51	340
		90	550	3525	620	51	270
	20	15	375	3025	665	48	230
		30	700	4275	660	55	580
		45	900	4275	630	56	510
		60	950	4275	610	58	500
		90	1050	4275	600	59	430
	30	15	600	2750	630	57	380
		30	1400	4175	560	65	680
		45	1625	4300	545	67	750
		60	1900	4300	515	70	810
		90	1900	4200	510	71	730

Smoked Sheets	100.
Hi-Sil	57.
Zinc Oxide	5.
Phenyl-beta-naphthylamine	1.
Sulfur	3.
Thiazole	As shown
TMTDS	0.25
Stearic Acid	1.

The results obtained for the optimum cure in each case are shown in Table I and summarized in Figure 1. Longer cures did not result in better properties in any instance.

It will be noted that the rates of cure are very fast. With but two exceptions, reduction of the primary accelerator in an effort to lengthen the curing time merely resulted in physical properties falling short of those potentially available. The exceptions were Ethylac and benzothiazyl disulfide (MBTS).

These two accelerators were then tested in combination with reduced amounts of the secondary accelerator, TMTDS. The recipe, otherwise, was the same as that given above. The results, given in Table II, again show that physical properties potentially available have failed to develop.

Determination of Scorch Rates

Since it did not appear that curing rates could be varied by changes in the total amount of acceleration, it became important to determine if there were differences in the scorch rates of various thiazoles in order to develop compounds that could be handled satisfactorily in factory production. The results, shown in Table III and

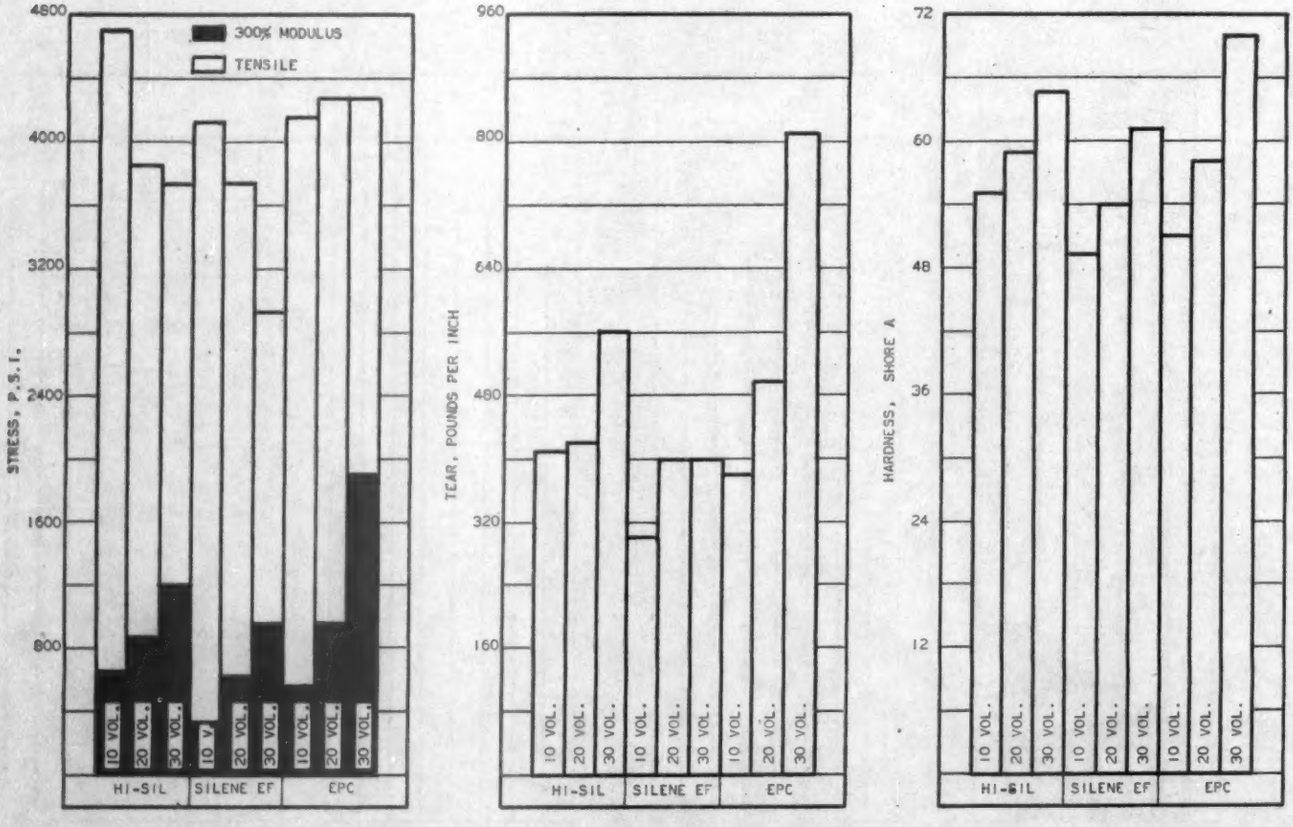


FIG. 4—Comparison of stress-strain, tear resistance and hardness of Hi-Sil, Silene EF and EPC black in 10, 20 and 30 volume loadings.

TABLE VI—COMPARISON OF REBOUND AND HEAT BUILD-UP OF HI-SIL, SILENE EF AND EPC BLACK IN 10, 20 AND 30 VOLUME LOADINGS

Pigment	*Loading Volumes*	*Cure at 260° (Min.)*	*Rebound—Percent (Goodyear-Healy)*	*ΔT—°F. (Goodrich Flexometer)*
Hi-Sil	10	65	80	8
		80	81	9
		115	83	9
	20	65	80	17
		80	75	18
		115	78	23
	30	65	69	38
		80	69	38
		115	68	44
Silene EF	10	35	75	23
		45	77	22
		65	76	19
	20	30	70	34
		45	70	34
		65	68	33
	30	30	66	79
		45	65	63
		65	65	64
EPC	10	170	80	16
		220	80	15
		315	79	16
	20	170	71	28
		220	70	28
		315	69	29
	30	170	60	58
		220	58	53
		315	58	50

TABLE VII—COMPARISON OF COMPRESSION SET AND FLEX-CRACK GROWTH OF HI-SIL, SILENE EF AND EPC BLACK IN 10, 20 AND 30 VOLUME LOADINGS

Pigment	*Loading Volumes*	*Cure at 287°F. (Min.)*	*% Compression Set (Method B)*	*Dematia Flexing (in./90,000 flexes)*
Hi-Sil	10	15	34	.08
		20	19	.16
		30	14	.19
	20	15	30	.08
		20	24	.11
		30	18	.12
	30	15	38	.05
		20	31	.04
		30	20	.11
Silene EF	10	7.5	93	
		10	52	.02
		15	29	
	20	5	80	
		10	22	.05
		15	19	
	30	5		
		10	33	.12
		15	30	
EPC	10	45	17	.07
		60	14	.09
		90	11	.10
	20	45	22	.08
		60	20	.09
		90	16	.08
	30	45	28	.08
		60	21	.07
		90	20	.08

Figure 2, led to the choice of a combination of one part of MBTS with 0.25 part of TMTDS for curing Hi-Sil stocks for comparison of various physical properties against Columbia's Silene EF and an easy processing channel black. No improvements were obtained by using other thiurams or dithiocarbamates as the secondary accelerator.

Tests showed tetramethyl thiuram monosulfide to be about as good an activator for MBTS as the disulfide. The tetrasulfide, however, and the tetraethyl disulfide definitely were not as good. Selenium dithiocarbamate also appeared about equal to TMTDS. Zinc dimethyl or dibutyl dithiocarbamates gave varying results when used with MBTS. This is not necessarily true when they are used with other thiazoles. With mercaptobenzothiazole, for example, zinc diethyl or dibutyl dithiocarbamates were as good as TMTDS.

Importance of Stearic Acid

In early work in our laboratory, only one part of stearic acid was used in natural rubber stocks containing 30 volumes of Hi-Sil. Later, several instances came to our attention where other laboratories had not been able to check our results. It was then found that when only one part of stearic acid is used, the results obtained are influenced strongly by the particular lot of natural rubber used. Maximum physical properties inherent in Hi-Sil are not always developed in natural rubber stocks containing only one part of stearic acid.

As mentioned above. Hi-Sil is very adsorptive. Consequently, a rubber that is deficient in natural fatty acid may be starved if only one part of stearic is used with a Hi-Sil loading. When this occurs, as evidenced by low tensile and tear, the fatty acid content should be increased to two or even three parts on the rubber. In addition to low tensile and very low tear, insufficient fatty acid may also result in wide variability in physical properties from one batch to another.

For example, when using only one part of stearic with 57 parts of Hi-Sil in a poor natural rubber, differences in tensile strength of as much as 700 pounds were obtained in successive batches. Not only did these differences not occur when three parts of stearic were used but the ultimate tensiles ran uniformly 400 pounds higher than the best result obtained when only one part of fatty acid was used. For this reason, three parts of stearic acid are now used in all laboratory evaluation and development work on Hi-Sil stocks.

Results obtained in a study of various volume loadings of Hi-Sil are shown in Table IV and Figure 3. Tensile values hold up well as the loading increases. Tear resistance increases with the load up to 25 volumes and does not fall off even at 35 volumes. As would be expected, the stocks become less plastic with increased loading.

Comparisons Over Range of Cures

The results of a direct comparison between 10, 20 and 30 volume loadings of Hi-Sil, an EPC black and Silene EF over a range of cures are shown in Tables V to VIII and a comparison of the optimum cures is presented graphically in Figures 4 to 7. Table V and Figure 4 give comparisons of stress-strain, tear resistance and hardness; Table VI compares the rebound and heat build-up; Table VII summarizes compression set and flexing results, and Table VIII lists Williams plasticity, Mooney scorch, and water absorption. Figure 5 shows heat build-up, rebound and compression set; Figure 6

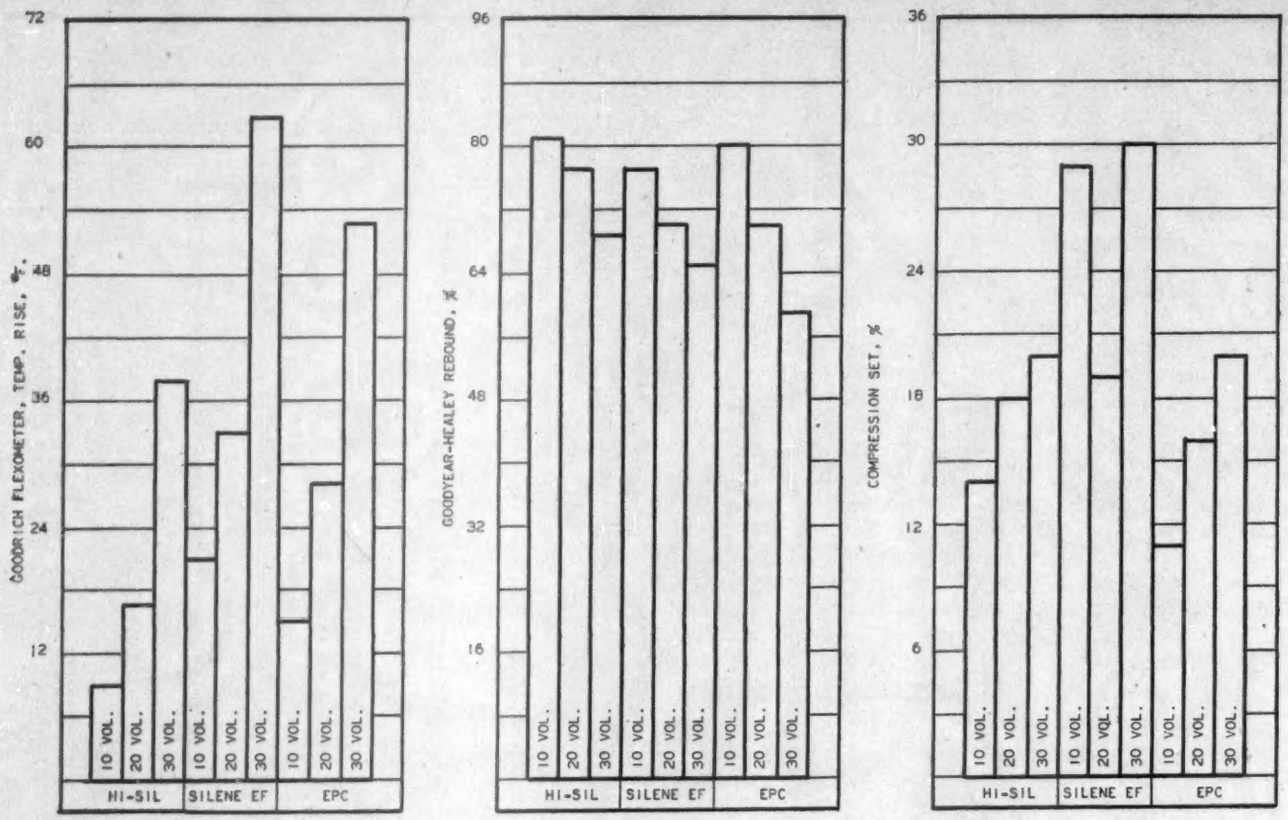


FIG. 5—Comparison of rebound, heat build-up, and compression set of Hi-Sil, Silene EF and EPC black in 10, 20 and 30 volume loadings.

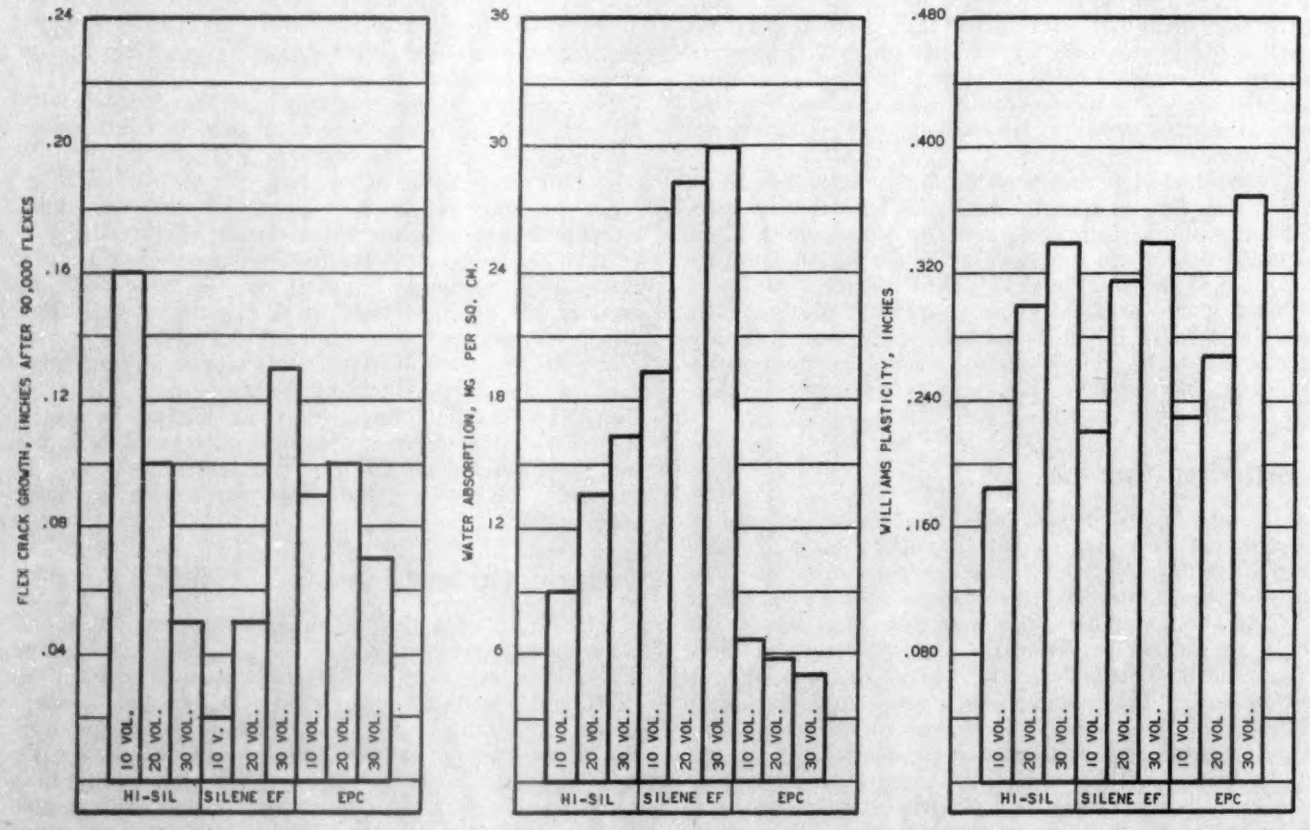


FIG 6—Comparison of flex-crack growth, water absorption, and Williams plasticity of Hi-Sil, Silene EF and EPC black in 10, 20 and 30 volume loadings.

TABLE VIII—COMPARISON OF PLASTICITY, SCORCH AND WATER ABSORPTION OF HI-SIL, SILENE EF AND EPC BLACK IN 10, 20 AND 30 VOLUME LOADINGS

Pigment	*Loading Volumes*	*Williams Plasticity (in.)*	*Mooney Scorch (min.)*	*Water Absorption (mg./cm.²)*
Hi-Sil	10	.185	35	9
	20	.300	27.2	13.5
	30	.340	21	16.2
Silene EF	10	.220	25.3	19.2
	20	.315	16.5	28.3
	30	.340	13.8	30.0
EPC	10	.230	23	6.6
	20	.270	22.3	5.9
	30	.370	14.5	5.3

illustrates comparative flex-crack growth, water absorption and Williams plasticity values, and Figure 7 compares Mooney scorch data on the three pigments. The recipes used for each pigment were as follows:

	Hi-Sil	*Silene EF*	*EPC*
Smoked Sheets	100.	100.	100.
Pigment		as shown	
Zinc Oxide	5.	5.	5.
Phenyl-beta-naphthylamine	1.	1.	1.
Sulfur	3.	2.5	2.75
MBTS	1.	1.	—
MBT	—	—	0.9
TMTDS	0.25	0.03	—
Pine Tar	—	—	3.

No particular comments need be made about the comparison between Hi-Sil and Silene EF as the former is superior in every characteristic to the lower cost calcium silicate. In comparing Hi-Sil with EPC black it will be noted that the silica definitely gives higher tensile and tear at the low loading (Table V and Figure 4). At the high loading, the tensile strength is about 10 per cent lower than that of the black. Tear resistance at the higher loading, although very good, is considerably lower than the black which, for some reason, was exceptionally high. Hardness of the Hi-Sil stock was higher than black at the low loading and lower at the high loading (Table V and Figure 4).

Compression sets of the Hi-Sil and black stocks as determined by Method B were quite similar. (Table VII and Figure 5). The same can be said about the results of the DeMattia flex test (Table VII and Figure 6). Conditions of the latter test were not drastic enough since a 1-inch flex designed for GR-S rather than natural rubber was used and the samples were run for only 90,000 flexes. Abrasion tests on the modified Goodyear angle abrader were not complete at the time this paper was written and will be reported later.

Water absorption tests were run for 14 days at 70°C. and the results are reported in milligrams of water absorbed per square centimeter of surface. They show Hi-Sil to be about midway between black and Silene EF (Table VIII and Figure 6).

Compounders familiar with the rather poor hysteresis properties of Silene EF will probably get their greatest surprise from the comparison of the heat build-up of Hi-Sil with that of EPC black (Table VI and Figure 5). The silica stocks have markedly lower hysteresis as determined by the Goodrich flexometer. Higher Goodyear-Healy rebound for Hi-Sil at every loading confirms the results of the flexometer tests.

In running the tests which are reported in this paper,

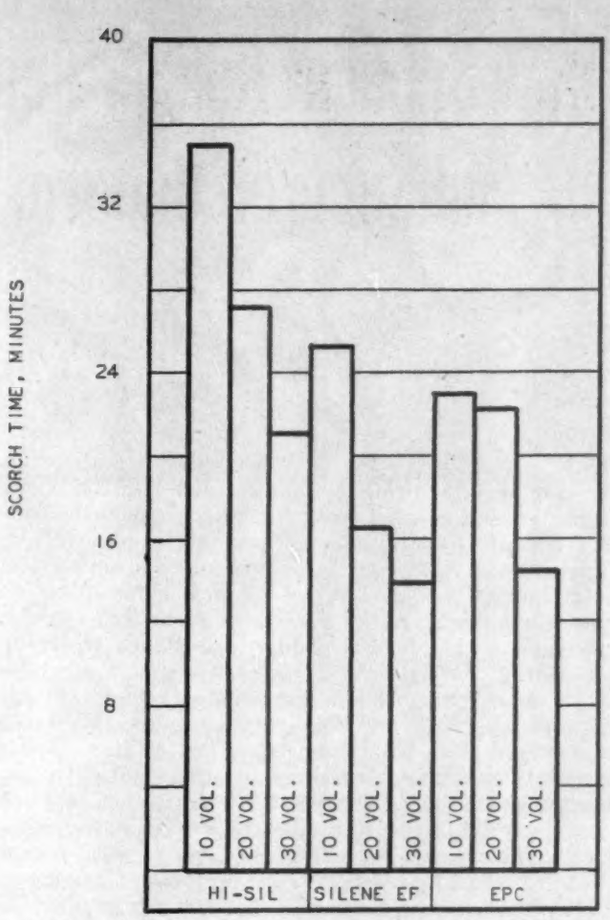


FIG. 7—Comparison of Mooney scorch of Hi-Sil, Silene EF and EPC black in 10, 20 and 30 volume loadings.

one part of the most common antioxidant, phenyl-beta-napthylamine, was used, purely as a matter of convenience. Obviously, PBNA would not be recommended for use in Hi-Sil stocks compounded to meet a color requirement because it is one of the worst staining antioxidants. It was assumed that the non-staining antioxidants ordinarily used in any colored stock would be satisfactory in Hi-Sil compounds. Apparently this may not be the case. This fact came to light when Agerite White was used in a white compound containing 30 volumes of Hi-Sil and accelerated with Captax and Tuads and the resulting cured part came out of the mold a distinct green color.

Selection of Proper Antioxidant

The problem of the proper antioxidant to use with Hi-Sil stocks is now being investigated thoroughly in the laboratory. Agerite Stalite and Agerite Gel have proven to give entirely satisfactory color when used in stocks containing 60 parts of Hi-Sil and cured with an MBTS-TMTDS accelerator combination. In this same recipe, several other supposedly non-staining antioxidants gave discolorations ranging from greenish, through pink to brown. There is a possibility that discoloration of some of the stocks resulted from inadvertent mishandling in the laboratory. Until this possibility is eliminated and the cause of any unusual discoloration then existing is definitely established, it is suggested that Agerite Stalite or Agerite Gel be used where delicate colors are involved.

How Schacht Rubber Reduced Fuel Operating Costs and Secured Uniform Operating Temperature

By A. R. BRANDT

General Manager, Schacht Rubber Manufacturing Co., Huntington, Indiana

THE Schacht Rubber Manufacturing Company has been manufacturing mechanical and household rubber goods for many years. Marketed under the name of "Daisy," these products include gaskets, washers, plugs, casters and caster cups, and miscellaneous household specialties. A number of production processes have been pioneered by the company and the general efficiency of the physical plant is consistently under improvement.

About a year ago the boiler room was rebuilt, including new coal and ash handling machinery and a new stoker-fired 350 h.p. three-drum curved tube boiler, together with water conditioning equipment. In connection with the power plant modernization, a Cochrane C-B high pressure condensate return system, made by the Cochrane Corporation of Philadelphia, Penna., was installed to provide positive removal of condensate from the platen presses and to insure uniform heating. Some of the power facilities at the Huntington plant are shown in Figure 1. Figures 2 and 3 are views of the C-B high pressure condensate return system as installed at the plant.

Before the installation of the return system, all platen presses in the plant were individually trapped. The condensate was then returned to an open receiver after flashing down to atmospheric pressure. This accumulating condensate was then pumped into a preheater and used again as boiler feed. Although it had not been considered important at the time, about 11 percent of the condensate was lost by flashing from exhaust pressure of 80 psi down to zero or atmospheric pressure. The performance of this system was never entirely satisfactory with its resultant loss of production due to inadequate drainage and loss of temperature due, in turn, to the intermittent action of the traps on the individual press units.

TABLE I—BATTERIES OF PLATEN PRESSES

Battery No.	*No. of Presses*	*Volume of Condensate*
1	16	5000 lb/hr.
2	25	7500 lb/hr.
3	25	7500 lb/hr.
4	12	3600 lb/hr.
5	8	2400 lb/hr.
6	12	3600 lb/hr.

By the use of the C-B system, a single trap now handles a battery of presses grouped as indicated in Table I. A typical battery of such presses is shown in Figure 4.

Because of the high back pressure on the traps, the traps now function as variable orifices modulating the flow of condensate to the pump suction. The discharge flows through a heat exchanger in which part of the heat in the condensate is given up to the incoming make-up

FIG. 1—Some of the power facilities of the Huntington, Indiana, plant of the Schacht Rubber Manufacturing Company, with the power plant seen at the right.

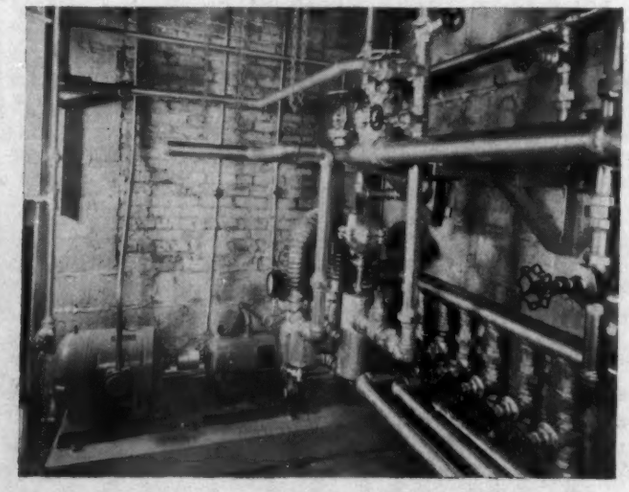


FIG. 2—View of the 10 h.p. C-B high pressure condensate return system installed at the plant. Valves from the batteries of presses to the inlet manifold are visible at the right.

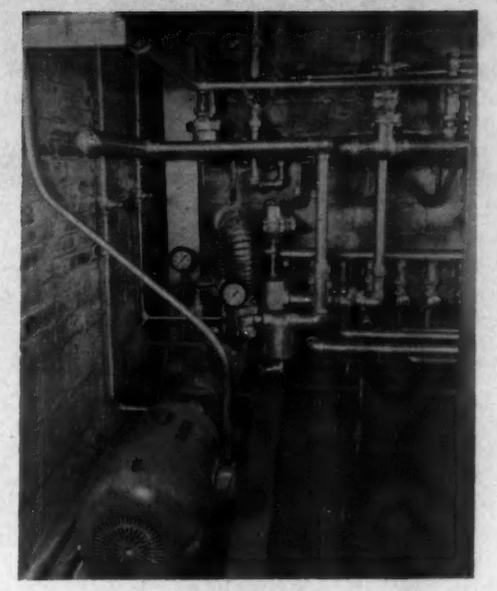


FIG. 3—Another view of the C-B system at the plant with the specially designed centrifugal pump in the foreground and the valves from the press batteries in the background.

water. The C-B unit then pumps the condensate directly into the boiler drum, bypassing the open heater and feed pump. This condensate is close to 325°F. upon discharge from the C-B unit. A simplified diagram of the system as employed in the Schacht plant is shown in Figure 5.

Operation of the C-B System

The operation of the C-B system is shown schematically in Figure 6. The specially designed centrifugal pump draws water from the thermo-fin priming loop and discharges it at high velocity through the jet pump nozzle. This jet strikes the returned hot condensate and induces condensate flow through the Venturi-shaped mixing tube and into the thermo-fin priming loop. The additional volume of condensate introduced into the constantly filled loop results in the discharge of an equal volume through the air separator to the boiler.

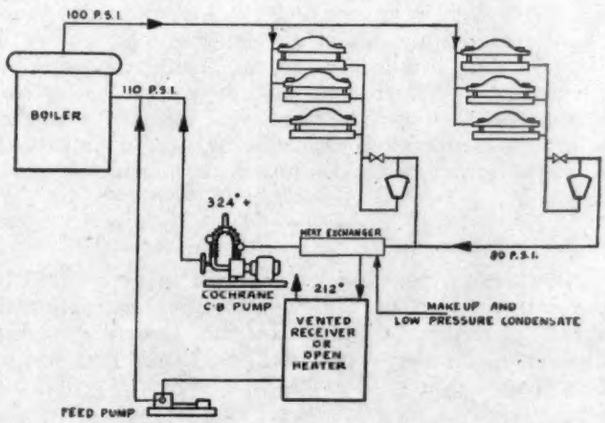


FIG. 5—Simplified heat balance diagram depicting installation at the Schacht Rubber plant.

FIG. 4—Battery of platen presses at the Schacht Rubber plant. There are six such batteries in the plant, ranging from 8 to 25 units.

The hot condensate and entrained air are drawn rapidly and positively from the platen presses by the jet pump and air is eliminated from the circuit by passing through the air separator on the outlet. The condensate is thus returned to the boiler at a maximum temperature and pressure. The circuit from boiler, through presses, and back to the boiler is completed in a closed system without substantial loss in temperature. Performance of the unit is verified by the pressure gage on the inlet and pressure gage and thermometer on the outlet.

Summary of Results

(1) The C-B system greatly increases the efficiency of the water tube boiler. The most important benefit however, is the uniformity of temperature at which

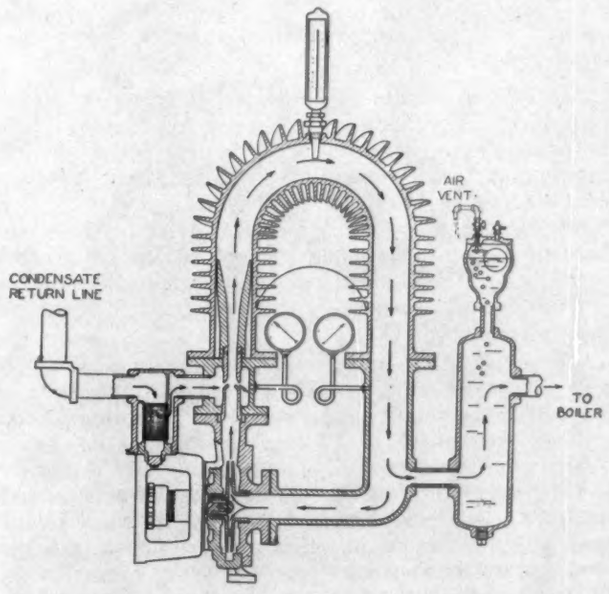


FIG. 6—Diagram showing condensate flow through the Cochrane C-B high pressure condensate return system.

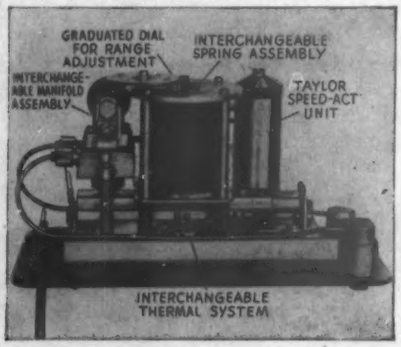
nearly one hundred platen presses are being operated with considerable reduction in lost time and defective cures.

(2) Boiler room routine requires a daily inspection of the pump and motor. The strainer on the suction line is cleaned once a month. Experience indicates the pump shaft requires repacking about every six months.

(3) Our experience indicates that a considerable saving in fuel (more than 25%) is being made by return of the condensate at comparatively high temperature. The greatest saving in operating expenses, however, is in the uniform temperatures at which platen presses can be maintained throughout the plant without regard to length of steam lines or distance from the boiler.

Taylor Temperature Transmitter

Designed particularly for those applications where it is desirable to have the indication, record or control remotely located from the point of measurement, a new force-balance type pneumatic temperature transmitter called the Taylor Transaire with Speed Act has been announced by the Taylor Instrument Companies, Rochester, N. Y. The transmitter is also of special use



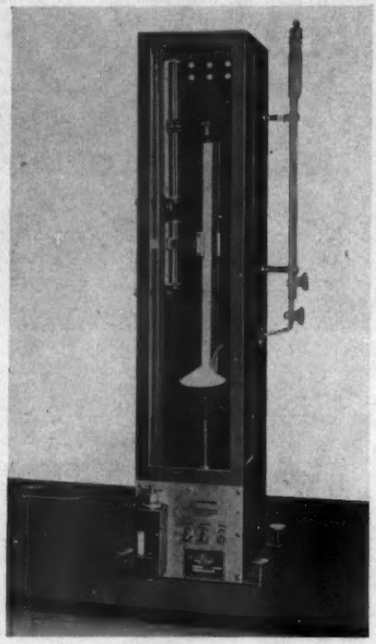
where high speed of response, small thermal elements and short range within the limits of minus 375° and plus 1000°F. are necessary.

One of the outstanding features of this new instrument is the incorporation of Speed-Act which applies the principles of Pre-Act or derivative action directly to temperature determination, an entirely new measurement technique developed by Taylor. Speed-Act overcomes the lag inherently present in the response of any form of thermal measuring element and makes possible a quality of measurement not before attainable with any temperature measuring element, particularly those requiring separable wells.

Wherever pneumatic temperature transmission can be used advantageously, (usually when the distance between point of measurement and location of recording or controlling mechanism is 50 feet or more), the Taylor Transaire Instruments provide an unusually responsive and dependable means for the detection of process temperature variations. Employing advanced force-balance principles, its output in psi is proportional to the temperature of its thermal element, and by means of ¼" O.D. copper tubing, this pressure change can be transmitted to a recording or controlling receiver remotely located as far as 1000 feet away, and even farther depending on conditions.

Precision-Shell Evaporometer

Developed exclusively for the determination of evaporation rates of all solvents with a viscosity of less than 100 cp. and the solvent release characteristics of resin solutions, the Precision-Shell Evaporometer has been announced by the Precision Scientific Co., 3737 W. Cortland St., Chicago 47, Ill. It can be used most ad-



vantageously by researchers in organic chemistry, the petroleum industry and the paint and varnish industry. This is the only apparatus made exclusively for determining evaporation rates.

The automatic filling microburet releases a sample on the filter paper cone which is suspended from a helical quartz spring and is rotated by a motorized electromagnet to distribute the sample evenly. After the cone is "freed," the sensitive spring rises as the sample evaporates. Knobs on the outside of the case raise or lower the spring and cone assembly, the centimeter scale, and the mirror. When the sighting disc just above the cone and its reflection are aligned with a scale calibration, an exact height reading is obtained.

The case is fitted with an outlet for a timing mechanism which can be operated by a switch on the nameplate panel. All switches are conveniently located on this panel. The volume of air drawn through the apparatus is indicated and controlled by an adjustable rotameter. A serrated hose connection at the base is provided for connection to a vacuum line. The case is attractively finished in brown Hammerloid enamel. The overall dimensions are: 1½ inches wide, 12 inches deep, and 41 inches high.

New design possibilities are said to be created by the introduction of a new **miniature variable-ratio speed changer** by the Metron Instrument Co., Denver, Colorado. This small packaged unit weighs less than 6 ounces, can be hidden in the hand, and yet can deliver up to 70 ounce-inches torque and .025 horsepower. Ratio of input to output speeds is infinitely adjustable between 1:6 increase and 6:1 decrease, with a total speed range of 36 to 1.

Compression Set of Nitrile Rubbers as Affected by Compounding

By C. G. CASHION

Xylos Rubber Company, Akron 1, Ohio

ONE of the outstanding developments of the past decade in the field of elastomeric materials has been that of the butadiene-acrylonitrile copolymers. This class of materials enables the rubber chemist to develop rubber products that will resist oil and heat, or heat alone, to a degree previously impossible. This new development poses new problems for the compounder, especially that of designing compounds that will possess good compression set characteristics. To this end, considerable work has recently been undertaken to determine some of the factors that influence set characteristics. It will be the purpose of this paper to report these studies.

Since it is the scope of this study to deal primarily with compression set, physical properties other than hardness and compression set, although measured, have been deleted from this report. Properties such as specific cold and oil resistance can be attained by the proper selection of the nitrile content of the copolymer and plasticizer. Other properties, naturally, can be attained by the application of general compounding knowledge. Previous studies on nitrile rubber compounding by this laboratory have been reported in the literature and are suggested as references *(1, 2)*.

In the work here presented, the compression set results were measured by using Method B as designated by A. S. T. M. D395-47T *(3)*. As the majority of today's specifications call for compression set run for 70 hours at 212°F. for this type of synthetic, it was deemed advisable to use these conditions. In some cases, as later reported, sets have also been run for the 70-hour period at 250°F. and 300°F. Higher temperatures than 300°F. have not been studied to date.

Four types of nitrile rubbers will be discussed in this study. The normal high nitrile type containing approximately 39 per cent nitrile (Butaprene NXM) will be designated as Nitrile Rubber "A". Butaprene NAA, which contains 35% nitrile and is easy processing, will be shown as Nitrile Rubber "B". The medium and low nitrile types containing 31 and 22 per cent nitrile, respectively, will be designated as Nitrile Rubber "C" and "D", respectively. The preceding percentages are those obtained by analysis of the copolymer.

To simplify the nomenclature of the accelerators used in this study, those produced by several suppliers will be designated by their chemical names, whereas those obtainable from a single source will be assigned their trade names.

Note: This paper was presented before the Division of Rubber Chemistry, A.C.S., Detroit, Mich., November 9, 1948.

TABLE I—VARIOUS ACCELERATORS IN A NITRILE RUBBER COMPOUND

(Cures, 20′ @ 312°F.; Sets run 70 hrs. @ 212°F.)

Base Formula	
Nitrile Type B	100
F. T. Black	50
H.M.F. Black	50
Zinc Oxide	5
Stearic Acid	1
Antioxidant	2
Sulfur	2
Ester Plasticizer	10

Accelerator Used	Shore "A" *	% Set
1.0% Santocure	76	67
1.5% D.O.T.G.	72	74
1.2% D.P.G.	80	76
1.5% Accelerator 808	77	74
1.2% Accelerator 2MT	75	79
0.5% T.M.T.D.S.	80	33

* Shore "A" designates durometer hardness as measured by the Shore "A" Durometer.

TABLE II—SULFUR THIURAM CURATIVE SYSTEMS

Formula:	A	B	C	D
Nitrile Type-B	100	100	100	100
H.M.F. Black	50	—	—	—
F.T. Black	50	—	—	—
S.R.F. Black	—	65	65	65
Ester Plasticizer	10	10	—	—
Zinc Oxide	5	5	5	5
Stearic Acid	1	2	—	—
Antioxidant	2	2	2	2
Paraffin	—	2	2	2
Sulfur	2	1	1	0.5
T.M.T.D.S.	0.5	—	—	—
Santocure	—	1	1	1.5
T.M.T.M.S.	—	1	—	—
Tetrone	—	—	1	1.5
Cure @ 312°F.	20′	20′	20′	20′
% Set 70 Hrs. @ 212°F.	33	26	31	33
Shore "A'	80	60	70	70

Sulfur-Accelerator Cures

Consideration will first be given to a study of compounds using sulfur with various accelerators to see if any offer an advantage over the sulfur-benzothiazyl disulfide or Santocure (N-cyclohexyl-2-benzothiazole sulfenamide) combination commonly used in nitrile rubber compounding. The results, as presented in Table I, indicate that this combination was the best of those tested, with the exception of the tetramethyl-thiuram

TABLE III—SULFURLESS FORMULAE USING NITRILE RUBBER—GROUP "A"

(Cures, 20' and 40' @ 312°F.; Sets run 70 hrs. @ 212°F.)

Base Formula

Nitrile Type A	100
Ester Plasticizer	27
E.P.C. Black	55
F. T. Black	55
Zinc Oxide	5
Antioxidant	2
Stearic Acid	1

Curative Used	Shore "A"	% Set
A—1% B.T.D.S., 2% Sulfur	65	81-70
B—1.5% B.T.D.S., 1.5% Tetrone A	60	44-22
C—3% Santocure, 3% T.E.D.S.	56	46-31
D—3% Santocure, 3% T.M.T.D.S.	60	34-25

disulfide mix. It should appear clear from these data that to obtain good set characteristics the use of high amounts of sulfur should be avoided except where it is used with the thiurams.

Since the sulfur-thiuram systems result in sets that are much less than those obtainable with other sulfur-accelerator combinations, it was deemed advisable to expand this line of thought to include combinations other than that shown in Table I. Four different combinations are shown in Table II, which presents stocks within the 60, 70 and 80 durometer ranges that possess relatively low sets. The combinations compared in Table II are those containing from one half to two parts sulfur with various amounts of Santocure and thiurams or thiurams alone. Formula "A" in this table may be varied by using 0.8 parts tetramethyl thiuram monosulfide in place of the 0.5 parts of tetramethyl thiuram disulfide. The other formulae are examples of sulfur-Santocure-thiuram combinations which may be of interest. As these accelerator combinations are of relatively low cost, they deserve consideration.

In cases where the cured rubber articles may come in contact with edible products, it is suggested that the sulfur-thiuram systems be given consideration because they impart no taste or odor to a product and at the same time give stocks of relatively good set characteristics.

By far the greater amount of this study has centered around sulfurless curing systems. Earlier investigations were carried out using thiurams alone and have been previously reported *(1, 2)*. Very good set characteristics are obtainable with the use of five to six parts tetramethyl thiuram disulfide, or three to four parts of Tetrone (tetramethyl thiuram tetrasulfide) or Tetrone A (dipentamethylene thiuram tetrasulfide). The cost involved in the use of these large amounts of accelerators naturally led to a search for ways to reduce part of the primary accelerator with subsequent substitution of a less expensive secondary type.

One of the first studies of the mixed system was that of tetramethyl thiuram disulfide with benzothiazyl disulfide. Later, Tetrone and Tetrone A were studied with the benzothiazyl disulfide. All these combinations gave good set. One disadvantage in the use of some of these was the fact that some are not very stable on storage. Santocure was next substituted in these blends with the result that the best set, storage, and processing stability were possible when blends of this accelerator and tetramethyl thiuram disulfide were used. When Santocure was used with Tetrone or Tetrone A, excellent sets resulted, but the storage stability and processing stability of the stocks were of low order. Data on the comparative sets obtained with the various accelerator systems are shown in Tables III, IV and V. In all these tables, a control recipe containing sulfur and accelerator is presented to show the large difference between the sulfur and sulfurless types of curing.

In Table III, three sulfurless stocks are compared to a sulfur-benzothiazyl disulfide control. Tetramethyl and tetraethyl thiuram disulfide are compared in this group. The efficiency of the tetramethyl versus the tetraethyl types are closely in ratio to their available sulfur. This stock was one using a high amount of plasticizer.

Stocks containing no plasticizer are shown in Table IV. Specifically, the use of Tetrone or Tetrone A in this study results in identical compression set resistance. Some interesting comparisons are shown in Table V. Tetramethyl thiuram disulfide plus benzothiazyl disulfide or Santocure are compared. The Santocure stock has considerably lower set than that containing the benzothiazyl disulfide. Where Tetrone is compared to Tetrone A, the Tetrone stock is better in this series.

In all cases, these compounds were superior to their comparative sulfur-accelerator control, with the tetramethyl thiuram disulfide plus Santocure combination resulting in the best compression set resistance.

TABLE IV—SULFURLESS FORMULAE USING NITRILE RUBBER—GROUP "B"

(Cures, 20' @ 312°F.; Sets run 70 hours. @ 212°F.)

Base Formula

Nitrile Type B	100
Zinc Oxide	5
S.R.F. Black	65
Antioxidant	5
Paraffin	2

Curative Used	Shore "A"	% Set
A—2% Sulfur, 1% B.T.D.S.	70	74
B—3% T.M.T.D.S., 3% Santocure	66	25
C—1.5% Tetrone, 1.5% Santocure	65	26
D—1.5% Tetrone A, 1.5% Santocure	65	25

TABLE V—SULFURLESS FORMULAE USING NITRILE RUBBER—GROUP "C"

(Cures, 20' @ 312°F.; Sets run 70 hrs. @ 212°F.)

Base Formula

Nitrile Type B	100
S.R.F. Black	60
Ester Plasticizer	10
Zinc Oxide	5
Antioxidant	3
Paraffin	2

Curative Used	Shore "A"	% Set
A—2.0% Sulfur, 1.0% Santocure	61	75
B—3% T.M.T.D.S., 3% B.T.D.S.	51	33
C—3% T.M.T.D.S., 3% Santocure	52	22
D—1.5% Tetrone, 1.5% Santocure	56	27
E—1.5% Tetrone A, 1.5% Santocure	54	36
F—2.0% T.M.T.D.S., 3.0% Santocure	50	32

Scorch Tendencies of Various Curative Systems

Mention has been made previously of storage and processing stability of stocks containing various accelerator combinations. This is a very important factor in the compounding of any stock and consequently extensive studies were made to determine how these various combinations could be expected to act in processing and storage. The Williams Plastometer was used to evaluate the static scorch characteristics after preheating 0, 40 or 80 minutes at 212°F. and the Mooney Viscometer was used in the dynamic studies. Static scorch characteristics are those related to storage safety of the stocks under study, whereas the dynamic scorch is interpreted to mean the tendency of the stock to scorch in processing, such as milling or extruding.

It is interesting to note when Table VI is examined that the sulfur-Santocure system is very good for storage, but can only be considered fair as far as processing is concerned. If the Santocure-Tetrone or -Tetrone A stocks are examined, it will be seen that they are better than the sulfur stocks as far as processing is concerned, but they will not stand storage for long periods of time. This fact has been found to be true in actual practice. It is therefore suggested that such stocks be used very soon after they are mixed. The same can be said of combinations such as Santocure and sulfur, plus tetramethyl thiuram monosulfide. The safest combinations, as shown by Table VI, were tetramethyl thiuram disulfide with either benzothiazyl disulfide or Santocure.

In this study, the value of tetramethyl thiuram disulfide plus Santocure or benzothiazyl disulfide is brought out. Both of these systems are very stable as far as storage and processability are concerned and under any ordinary conditions can be considered to be free of scorch tendencies in process. If reference is made to Table V, it will be seen that the Santocure system offers an additional advantage in compression set; consequently, this system is used for the majority of the work which will be reported later in this paper.

Naturally, there are many other accelerator combinations in use today with the nitrile rubbers. Studies similar to that described here would probably bring to light some interesting facts for the compounders using them.

Relation of Nitrile Content to Compression Set

Consideration will now be given to the nitrile content of the copolymer.. With a sulfurless curing system, the nitrile content of the copolymer appears to have very little effect on the compression set of the resultant compound. By reference to Table VII, it can be seen that for the entire nitrile range study there is only a small variation in the compression set results.

A second interesting point to be observed in Table VII is that the lower nitrile content may be that of the copolymer itself, or it may be arrived at by blending with a rubber containing no nitrile. For instance, in the case of the medium nitrile rubber, Type "C," which contains approximately 31 per cent nitrile by analysis, a set of 31 per cent was found. If the high nitrile rubber, Type "A", is blended with GR-S or crude so as to give approximately an equivalent nitrile content, the sets become 33 per cent and 37 per cent, respectively. In the case where reclaimed rubber hydrocarbon was used in the blend, the set increased to a greater extent. It should be pointed out that in this case no adjustment was made in the plasticizer to compensate for the oils in the reclaim. Should this have been done, the resultant set would have been much lower.

Further investigation of this subject led to a direct comparison of GR-S and two nitrile rubbers in exactly the same compound, as shown in Table VIII. It is inter-

TABLE VII—RELATION OF NITRILE CONTENT TO COMPRESSION SET

(Cures, 20′ @ 312°F.; Sets run 70 hrs. @ 212°F.)

Base Formula

Copolymer	100
Ester Plasticizer	20
Mixed Blacks*	105
Zinc Oxide	5
Antioxidant	2
T.M.T.D.S.	3
Santocure	3

Nitrile Rubbers	Shore "A"	% Set
100% Type A	65	30
100% Type B	64	35
100% Type C	63	31
100% Type D	55	35
75% A-25% GR-S	65	33
75% A-25% Natural Rubber	67	37
75% A-25% Reclaim Hydrocarbon†	68	42

* Equal parts of H.M.F., E.P.C. and F.T. Blacks.
† Standard whole tire reclaim used.

TABLE VI—SCORCH STUDIES ON NITRILE RUBBER COMPOUNDS

Curative Systems	Williams "Y" Values 0′	40′	80′	Mooney Value (at 240°F.)
Sulfur, 2-Santocure, 1	3.4	3.7	3.8	12 min.
Sulfur, 2-T.M.T.D.S., 0.8	3.3	3.5	3.9	17 min.
Santocure, 1.5-Tetrone, 1.5	3.4	3.7	8.7	15 min.
Santocure, 1.5-Tetrone A, 1.5	3.4	4.0	9.3	14 min.
T.M.T.D.S., 3-B.T.D.S., 3	3.4	3.6	4.0	60 min.
T.M.T.D.S., 3-Santocure, 3	3.5	3.8	4.1	60 min.
Sulfur, 1-T.M.T.M.S., 1-Santocure, 1	3.4	3.7	8.3	18 min.

Note: Williams "Y" Values after heating at 212° F.; Mooney running at 240° F.—time for value to start to raise.

TABLE VIII—COMPRESSION SET OF NITRILE RUBBER VERSUS GR-S

(Cures, 20′ @ 312°F.; Sets run 70 hrs. @ 212°F.)

Base Formula

Copolymer	100.0
S.R.F. Black	50.0
Zinc Oxide	5.0
T.M.T.D.S.	2.5
T.M.T.M.S.	0.5
Santocure	3.0
Paraffin	1.0
Antioxidant	2.0

Copolymer Used	Shore "A"	% Set
GR-S	52	17
Nitrile Type C	60	19
Nitrile Type B	55	24

TABLE IX—COMPRESSION SET VERSUS TIME AND TEMPERATURE OF CURE

(Regular ½-inch buttons cured; Sets run 70 hrs. @ 212°F.)

Base Formula

Nitrile Type A	100
Ester Plasticizer	20
Carbon Blacks	105
Zinc Oxide	5
Antioxidant	2
Santocure	3
T.M.T.D.S.	3

Time (Min.)	Temperature—°F. 348	330	312	294
2.5	99%	—	—	—
5.0	47%	81%	—	—
10.0	29%	39%	57%	—
20.0	—	26%	31%	48%
40.0	—	—	23%	27%
80.0	—	—	—	21%

esting to note, as presented in this table, that with this type of formulation these three copolymers have compression set characteristics that are very close together. This indicates, as does Table VII, that blends of the nitrile rubbers and GR-S, natural or reclaimed rubber hydrocarbon may be made to meet practically any desired condition. The selection of the nitrile content to be used will then be dictated by the oil resistance or other properties desired in the compound. The nature and amount of the non-nitrile rubber can be selected accordingly.

It might be pointed out here that, in applications involving resistance to both A.S.T.M. No. 1 and A.S.T.M. No. 3 oils, representing the high and low ends of the aniline point range that is in practical use today, it is advisable to use either GR-S or crude to prevent shrinkage in the high aniline point type. Reclaimed rubber hydrocarbon may be used in the blend for purposes of economy. Neoprenes may also be blended with the nitrile rubbers where such combinations offer special advantages.

Compression Set Versus Time and Temperature of Cure

It is a recognized fact that practically everyone is interested in increasing the output of a given piece of equipment as much as possible. Consequently, a study of the effects of time and temperature on the compression set of nitrile rubber stocks is of interest. The basic formula shown in Table VII using nitrile rubber "A" was selected for this study. Cures were made at temperatures from 294°F. to 348°F. on one-half inch compression set buttons. The results of the study are given in Table IX. With this type of curative system, it has been found that the rate of cure measured by compression set does not follow the usual rule of doubling for each 18°F. increase in temperature. Based on the studies presented in Table IX, the rate increases 1.4 times for 18°F. increase in temperature.

In some instances, it may be desirable to increase the time of cure rather than increase the temperature of cure. Should this be the case, this study indicates that there is a drop in the set of close to 40 per cent for each time the cure is doubled.

Plasticizer Effects

If the formulations in Tables IV and V are examined, it will be found that the first contains no plasticizer, while the second contains 10 parts of an ester plasticizer. An average set of 25 per cent is shown in Table IV, whereas the average becomes only 31 per cent for Table V. This indicates that the presence of plasticizer does affect the set resistance to a limited extent and should be considered when designing a compound.

It is suggested that in all cases where compression set under heat is necessary, and especially in cases where the temperature is to be above 212°F., that plasticizers with the highest possible boiling points be used, consistent with the cold properties desired. Sometimes, combinations of ester plasticizers plus non-volatile plasticizers, as exemplified by the soft coumarone indene resins, are advisable. Such a combination is shown in Table XI.

Carbon Black Loadings

When we consider the carbon black loading of nitrile rubber stocks using the sulfurless curing system, several interesting points come to light. By far the best set characteristics are obtained with the furnace and medium thermal blacks; the easy processing channel and fine thermal blacks give sets considerably higher than the aforementioned types. Should furnace blacks alone have been used in several of the previously described series, lower sets would naturally have resulted. In some cases, mixed blacks are to be preferred for reasons of processing, definite physical properties, etc. Their selection, however, should be governed by the effect on the compression set where the set is an important point to be met. In Table X will be found the set characteristics of the various blacks tested. It is very apparent that the furnace blacks are to be preferred for low sets.

Mineral Fillers

All of the work in this study has been conducted on black stocks. It is realized that in some instances light colored stocks which are oil resistant are desired by the trade today. It is possible to obtain relatively low sets on stocks loaded with mineral filler, but in some instances they are not as good as those obtained with the blacks. Comparing a precipitated whiting stock with a fine thermal black stock at a 60 to 65 durometer range, it was found that the set was 38 per cent for the whiting and 32 per cent for the black. It should be pointed out, however, that, had furnace black been used in place of fine thermal, the set would be under 25 per cent. In another case, sets as low as 32 per cent were obtained on a stock loaded with clay using Tetrone A plus Santocure.

TABLE X—NITRILE RUBBER WITH VARIOUS CARBON BLACKS

(Cures, 25' @ 312°; Sets run 70 hrs. @ 212°F.)

Base Formula

Nitrile Type A	100
Ester Plasticizer	20
Zinc Oxide	5
Antioxidant	2
Santocure	3
T.M.T.D.S.	3

Black	Shore "A"	% Set
E.P.C. Black (70 Parts)	61	40
H.M.F. Black (68 Parts)	63	26
S.R.F. Black (110 Parts)	68	21
F.T. Black (175 Parts)	54	36
M.T. Black (175 Parts)	66	22

Generally speaking, the mineral filler stocks need greater activation or acceleration to offset the absorption effects of the materials used. These effects may be counteracted by increasing the amount of the accelerator, using a more powerful accelerator, or by the use of activating agents such as diethylene glycol in the compound.

Effect of Heating Media on Compression Set Results

During the last several years, the S.A.E.-A.S.T.M. Technical Committee on Automotive Rubber has spent considerable time studying the effects of circulating air on the tensile properties of synthetic rubbers. It was found that the amount of circulation does have a decided effect, especially at the higher temperatures, on the resultant properties. These studies *(4, 5)* led to the establishment of new A.S.T.M. procedures for elevated temperature aging of elastomers *(6)*. A like study of the effects of air and oils on set properties would be of interest. To this end, the basic formula in Table VII using nitrile rubber "A" was tested in special jigs in air, mercury, and the two A.S.T.M. test oils at 212°F.

In all cases, except where the low aniline point oil was used, the sets were practically identical and equal to the regular set. In the case of the low aniline point oil, the set was reduced to a small degree. It should be remembered that, in the case of the test buttons used in compression set measurements, the exposed area of the button is approximately one-half the total area of the button. The heat transfer medium can act on only half of the surface, whereas in test strip aging it acts on all of the surface.

These tests indicate that compression set as now measured is a good index to the performance of the part in service and any improvement in the compression set properties can be expected to be reflected directly in improved performance of the parts in use.

Effects of Heat Conditioning

Recently, considerable interest has been manifest in the aging or conditioning of cured synthetic elastomers to improve their set properties. The nitrile rubbers react to this conditioning and it appears possible to achieve considerable improvement in set characteristics by this treatment. For example, two stocks which had been cured 20 minutes at 312°F. were subsequently aged for 70 hours at 212°F. On both of these stocks, the compression set dropped from about 32 per cent to 22 per cent, with average dimensional changes of approximately ½ per cent. In both cases, the set improvement was close to that which would be obtained by doubling the cure. Advantage may be taken of this procedure to increase the output of available equipment, or to improve the set characteristics of parts where a reduction in set is necessary.

TABLE XI—COMPOUNDS TO RESIST SET AT 250° F.

(Cures, 20′ @ 312°F.)

	A	B
Nitrile Type B	80	80
GR-S	20	—
Crude	—	20
Soft Cumar	10	10
Ester Plasticizer	5	5
T.M.T.D.S.	3	3
Santocure	3	3
Zinc Oxide	5	5
Antioxidant	2	2
H.M.F. Black	25	25
F. T. Black	15	15
Shore "A"	50	48
Compression Set, 70 hrs.		
At 212° F.	20%	23%
At 250° F.	25%	31%

TABLE XII—COMPRESSION SET AT 212°, 250° AND 300° F.

(Cures, 20′ @ 312°F.)

Base Formula	
Nitrile Type B	100.0
F. T. Black	As Shown
Zinc Oxide	5.0
Tetrone A	1.5
Santocure	1.5

Shore Range	35-45	45-55	55-65
Parts Black	15	50	100
Actual Shore	43	55	65
Set @ 212° F.	26	35	32
Set @ 250° F.	33	42	39
Set @ 300° F.	53	57	53

Compression Set at 250°F. and 300°F.

Requests are often received for stocks that will resist heat at 250°F. to 300°F. Studies have been made on five compounds in this range and are presented in Tables XI and XII. The stocks shown in Table XI were actually made to meet A.M.S. 3226B. It should be noted that GR-S and crude were used to control the shrinkage. Such basic stocks could be varied to meet any hardness range where these heat resistant characteristics are necessary.

Stocks in the 40, 50 and 60 durometer ranges are presented in Table XII. In this case, a comparison of the sets run at 212, 250 and 300°F. are shown. These and the formulations shown in Table XI are presented as examples of nitrile rubber compounds which will possess good compression set resistance at high temperatures.

It should be pointed out that in the first series fifteen parts of the mixed plasticizers were used with no more effect on the increase in set from 212 to 250°F. than is shown in the second group where no plasticizer was used in the formulations.

Conclusions

1. Compounds cured with sulfur plus accelerators other than the thiurams should be avoided where compression set resistance is necessary.
2. Stocks cured with sulfur plus thiurams give low set characteristics. Caution in processing is necessary.
3. Sulfurless compounds are suggested in most cases for good set characteristics.
4. Sulfurless compounds using benzothiazyl disulfide or N-cyclohexyl-2-benzothiazole sulfenamide plus tetramethyl thiuram disulfide are to be preferred due to their scorch resistant characteristics. The latter combination gives the best compression set.
5. Compression set characteristics of a compound are little affected by the nitrile content of the copolymer when sulfurless cures are used.
6. The nitrile content need not be that of composition,

but may be arrived at by dilution with crude rubber, GR-S, or reclaimed rubber hydrocarbon.

7. As measured by compression set characteristics of the nitrile rubbers, the rate of cure increases 1.4 times for each 18°F. increase in the temperature of the cure.

8. Furnace blacks are to be preferred where low set is necessary.

9. Low set stocks with mineral fillers are possible with adjustments in acceleration.

10. Heating medium plays only a small part in compression set characteristics and the test method as used is believed to be a very good index of service performance.

11. Cured nitrile rubber parts are improved in set characteristics by heat-conditioning subsequent to curing.

12. The nitrile rubbers may be used to produce compounds that possess relatively good compression set at 250°F. and 300°F.

ACKNOWLEDGEMENT

The author wishes to express his appreciation to the management of The Xylos Rubber Company for permission to present this paper and to the staff of the Service Laboratory for assistance in the work here presented.

LITERATURE REFERENCES

(1) Crossley and Cashion, *Ind. Eng. Chem.*, Vol. 33, p. 55 (1944).

(2) Crossley and Cashion, *Rubber Age (N. Y.)*, Vol. 58, p. 197 (1945).

(3) "A.S.T.M. Standards on Rubber Products," Feb., 1948.

(4) McCarthy, G. D., et al, *A.S.T.M. Bulletin*, No. 132, p. 33 (Jan., 1945).

(5) Juve, A. E., et al, *A.S.T.M. Bulletin*, No. 147, p. 51 (Aug., 1947).

(6) A.S.T.M. D 865-47T.

Method of Improving Deck Coverings with Latex

FOR a good many years the ship building industry has used magnesium oxychloride cement as a deck covering for unexposed decks. This material is made up of an aggregate (usually crushed quartz), fine sand, calcined magnesite (powdered), and a magnesium chloride solution. These materials are combined in the right proportions, then trowled onto the deck surface. When properly applied, this type of deck has proved very serviceable. There have been two serious drawbacks to this decking, however. First, it won't bond to steel decks. And second, the magnesium chloride salts in the cement are highly corrosive to steel.

To overcome these deficiencies, it has been necessary to provide a mechanical bond by welding metal clips or wire mesh to the deck. In some instances, the decks have been roughed up with air tools in lieu of welding "holdfasts" to it. Then, too, to protect the steel against corrosion and rust, a protective undercoating is usually required. For the most part, bituminous compositions have been employed for this purpose.

In recent years, however, a new method has been worked out for the application of oxychloride cements through the development of an entirely new underlayment material. It consists of a specially processed neoprene latex and dehydrating powder which are mixed together at the time of application.

Because this material has excellent adhesion to steel, wood and concrete, it eliminates the need for mechanical fastenings. It protects the steel against corrosion caused by magnesium salts. And, because it makes a flexible coating, it stands up very well under the working motion of a ship's deck.

Other important advantages are claimed for this underlayment, too: A flexible bond is created over 100% of the area between the magnesite cement and steel as compared to wire mesh or metal clips where adhesion is limited to weld spots only. Because it is flexible, it acts as a shock absorber between the steel and rigid magnesite cement, absorbing both the shock of deck motion and thermal shocks between these two dissimilar materials. The entire installation can be made by one applicator. This fact, plus the elimination of other materials can often result in a considerable saving of both time and money to the ship owner. Finally, in certain types of decks, a substantial reduction in weight may be realized. Normally, magnesite is laid in a minimum thickness of 5/8-inch, because of the height of the mechanical fastenings used. With this new bond coat, the over-all thickness of magnesite may often be reduced to 3/8-inch or 1/2-inch.

Although its use as a bond coat for magnesite is important, the neoprene composition is not confined to this application. It is used as a sub-coat and leveling course beneath hard tile, vinyl tile, and other types of prefabricated decking such as carpet, linoleum and asphalt tile.

By the addition of certain types of fillers, extenders or pigments, both service and decorative finish decks may be produced. For instance, by including an inert mineral aggregate in the dehydrating powder before combining it with the latex, a tough non-slip weather decking results. This material, when troweled onto the deck in 1/4-inch thickness, produces a long-wearing surface, according to the manufacturer. Its weight of 2.5 pounds to the square foot in 1/4-inch thickness is much lighter than most types of materials used for weather decks. Other advantages reported are that it lends insulation to a steel deck, and, like the undercoating, bonds tightly and prevents corrosion. This compound has been used in place of wood decks over steel in many cases.

Decorative, colorful, non-slip decking for use in wet spaces or for living quarters results when the neoprene latex is colored and combined with marble chips. Its weight, when layed 3/8ths of an inch thick, is 4.5 pounds per square foot, which is reported to be much lighter than materials normally used for wet spaces. It is monolithic and can be readily formed around fixtures and over combings. Another terrazo type decking which utilizes smaller sized marble chips may be applied in 1/4-inch thickness. It is even lighter than the above described type (3 pounds per square foot) and, of course, offers additional savings.

Because of the severity of marine service, the properties of neoprene latex contribute substantially to the success of these improved deck coverings. It produces a finished decking or undercoating that is flame resistant, resilient, withstands severe weathering and ages exceptionally well.

Neoprene Notebook

Editorials . . . . . .

Economic Condition

CONDITIONS in the rubber manufacturing industry at the moment parallel those of other industries, viz., they are nothing to write home about. Most of the small and medium-sized factories report business as being from 30 to 40 percent below that of last year, with little optimism for any change in the situation much before the Labor Day holiday. However, despite the current economic condition in the field, all signs point to a fairly satisfactory 1949 by the end of the year.

Tire manufacturers confidently expect 1949 to be a reasonably satisfactory year, with total rubber consumption topping 1,000,000 long tons for the fourth consecutive year. Although sales are expected to drop between 5 to 15 per cent, with over-all net income off comparably, current optimism is based on the necessity of revising summer sales upward. Producers who were "cautiously optimistic" at the beginning of the year now state that current indications for tires and miscellaneous rubber products point to near record sales for May, June, July and August. A recent survey made by the *New York Herald Tribune* bears out this feeling.

For example, L. R. Jackson, president of the Firestone Tire & Rubber Co., stated that there seems to be little question that business for Firestone will be somewhat better this summer than it was last year, emphasizing that the high production schedules of the automotive industry for the summer season means substantial increases in passenger, truck and bus tire output. Referring to "miscellaneous products," Mr. Jackson said that the output of latex foam sponge products for the transportation and furniture industries has trebled during the past year and sales are expected to gain in line with ever increasing markets.

The survey also indicated that many rubber manufacturers believe that products in the miscellaneous category will meet volume figures of 1948. An official of the U. S. Rubber Co. voiced the opinion that the bicycle tire industry will sell about 4,000,000 replacement tires this year, of which about 70 percent will be sold in the May-October period. It was also predicted that jar ring sales will approximate the 1948 totals, when 4,064,096 gross were sold.

In the general field of non-transportation rubber goods, such as belting and hose, rubber manufacturers are still enjoying good demand as compared with prewar standards. The pent-up demand for such products has been easing in recent months, and backlogs have gradually been diminishing throughout the field, but some demand is still evident. It is obvious, therefore, that although business in the rubber field is dull, the industry is still faring far better than most other durable goods industries.

Synthetic Plants

THERE is little likelihood that any action on the disposal of government-owned synthetic rubber facilities will be taken during the present Congressional session. Neither the Senate Banking and Currency Committee nor the House Armed Services Committee will have time to study and reach decisions on the recent RFC recommendations (which were published in our May issue). In fact, the Senate committee has indicated that it plans no action until definite legislation is submitted by President Truman, although the House committee is contemplating public hearings during the Congressional recess. In all probability, therefore, no change in the synthetic rubber picture from an operations standpoint will occur before the spring of next year.

CURRENT NEWS OF THE MONTH

DELANEY APPOINTED TRUSTEE FOR NORWALK TIRE & RUBBER

Wallace W. DeLaney, of Bethel, Conn., was appointed trustee of the Norwalk Tire & Rubber Co., Norwalk, Conn., on May 26 by Judge Carroll C. Hincks of the United States District Court at New Haven, Conn. Mr. DeLaney, widely known in the rubber field, is a former executive of both the Seamless Rubber Co. and the Faultless Rubber Co. He was required to post a $25,000 bond and was ordered to file a report with the court on the 25th of each month. A hearing on the new trustee was scheduled at the court on July 7.

The court's order gave Mr. DeLaney full power to employ, discharge, fix compensation and make necessary purchases for operation of the business. He was directed to close present books of accounts as of May 31 and to open new books, and was authoribed to employ the following company officers: Walter A. Krappe, vice-president; H. C. Miller, secretary; J. N. Cieri, treasurer, and J. W. Webb, assistant secretary. J. W. Whitehead, president of Norfolk Tire, died on May 27.

The action of the District Court was subsequent to a petition in bankruptcy under the provisions of Chapter 10 of the Bankruptcy Act filed by Norwalk Tire officials with the same court on May 21. This petition was filed a few hours after Judge William J. Shea, of the Superior Court in Bridgeport, Conn., had lifted an injunction restraining the management from starting such proceedings. Judge Shea also upheld the election last January of the company's board of directors. Saul Berman and Peter B. Olney, both of New Haven, have been named referees in bankruptcy by the U. S. District Court at New Haven.

The injunction proceedings in the Bridgeport court were originally filed by T. A. Maguire & Company of New York, one of the principal stockholders of Norwalk Tire. The Maguire concern, through Elliot E. Simpson, its president, also a stockholder, alleged that the election of directors last January was illegal because stockholders were not informed of tax debts and other obligations owned by the company. The petition requested that the company be restrained from starting bankruptcy proceedings. After the injunction was dissolved, Mr. Simpson announced that a stockholders' protective committee was being organized.

Enjoins Original Attachments

The District Court further enjoined all persons from starting or continuing any action against the Norwalk company until a final decree is entered. Up to that time, five companies had filed attachment proceedings against the company totaling $1,500,000. The New York Trust Company, which recently sued Norwalk for $1,000,000, attached five tracts of land in the amount of $1,284,000. The trust company's suit was in behalf of Norwalk's debenture holders. The trust company, as a trustee of Norwalk Tire, charged it with having defaulted on its excise tax obligations.

The four other attachments, returnable to the Superior Court in Bridgeport, Conn., were filed as follows: H. Muehlstein Co., Inc., $50,000; Hecht, Levis & Kahn, Inc., $50,000; Bibb Manufacturing Co., $75,000; and United Baltic Corp., $60,000. These attachments were also placed against the five company-owned tracts.

The firm's difficulties were described as having begun during the past four years when over $1,900,000 was spent for government and other surplus machinery and on technological improvements. Counsel for Norwalk told the court that the company difficulties came about as a direct result of lack of working capital. The court was also told that if an effective reorganization is worked out, Norwalk has been assured a $1,000,000 loan by the Reconstruction Finance Corp.

The last financial statement of the company, covering the six-month period to March 31, 1949, revealed a net loss of $19,522, after giving effect to $11,965 tax credit, compared with a net loss of $29,736, including a tax credit of $18,225, for the corresponding period of 1948. Sales for the six-month period amounted to $3,073,983, against $3,402,194 for the six-month period ended March 31, 1948.

Banner Safety Year

The National Safety Council reports that industry had a banner safety year in 1948. Last year's industrial injury rates show a substantial reduction in both frequency and severity of accidents to employees as compared with 1947. The accident frequency rate for all industries was 11.49, a reduction of 13%, and the accident severity rate was 1.12, a reduction of 9%. The rubber industry had a frequency rate of 8.35, an 8% reduction, and a severity rate of .65, a reduction of 7%.

Experiments in the domestic cultivation, processing and use of ramie are described in a new report recently released by the Office of Technical Services, Department of Commerce, Washington, D. C. It summarizes work done in Florida by the University of Florida in cooperation with the Department of Agriculture.

NATURAL RUBBER PRICE RISE HIT BY GOODRICH PRESIDENT

John L. Collyer, president of the B. F. Goodrich Co., speaking in Detroit, Mich. at the May 23 meeting of the Detroit Section of the Society of Automotive Engineers, said the current campaign by the British, Dutch and certain other nations to raise the price of crude rubber by restricting production of American synthetic is not only a threat to our national security but is a "cartel road which leads to totalitarianism." Mr. Collyer pointed out that for the first time natural rubber faces a competitor in American-made rubber which has earned a position on the basis of cost, availability and proven utility.

"The exclusive position which crude rubber enjoyed until the near end of World War II," he said, "is now a thing of the past. Healthy competition now exists between the two types of rubber. The need for maximum efficiency on the part of producers competing for sales in the world rubber market is apparent.

"In this situation, the opposition of the British and Dutch and other crude rubber producing nations is not difficult to understand. There can be no doubt that these nations will continue to press for some arrangement whereby the impact of American rubber upon crude rubber prices is sharply reduced or eliminated, making possible higher crude rubber prices."

Road To Totalitarianism

"If in order to raise the price of crude rubber it is necessary to embrace control schemes that tend toward totalitarianism, let no one be misled that any headway is being made against the threat of Communism. The reverse may well be true."

Mr. Collyer said the crude rubber-producing nations contend that raising prices will help to alleviate the so-called "dollar shortage" in producing areas and will lessen the need for American aid. He pointed out that the dollars which these countries receive do not depend solely on the price per pound—the quantity they sell is equally important.

The question posed for us, he said, is whether the short-run interests of a few should be given the ascendency over the long-run interests of the people as a whole. The objectives which should guide America's rubber policy, he said, should include an ample supply of low-cost, high-quality rubber products, and the assurance that in terms of rubber, national security is at all times assured.

Manhattan Rubber has issued a new 36-page catalog describing its line of Resinoid Bonded Diamond Wheels. It contains a complete description of types, sizes, list prices and other data.

WASHINGTON HEARS POLHAMUS ON WESTERN HEMISPHERE RUBBER

The eleventh regular meeting of the Washington Rubber Group was held on May 24 at the Cosmos Club in Washington, D. C. Dr. Loren Polhamus, principal agronomist of the Division of Rubber Plant Investigations, Bureau of Plant Industry, Soils, and Agricultural Engineering, U. S. Department of Agriculture, Beltsville, Md., spoke on the subject "Natural Rubber Developments in the Western Hemisphere."

The speaker noted that World War I demonstrated the strategic need of rubber in the economy of foreign nations. Firestone, Hoover and Edison adopted the motto "America should produce its own rubber." In accordance with a 1922 appropriation, the Commerce Department made extensive surveys of sources of crude rubber. Ford initiated plantings in Brazil, Firestone in Liberia, Goodyear in Panama and Costa Rica, Goodrich in the Dominican Republic, and the United Fruit Co. in Panama, Costa Rica, and Honduras. All plantings in Central and South America were affected by leaf disease, said Dr. Polhamus.

In 1940, the Department of Agriculture initiated plantings in tropical America in cooperation with local governments. Research work was initiated, and high yielding clones were obtained from the Philippines. Following up work done in Brazil, disease resistant clones were developed for top-budding Hevea to give disease resistance. A workable process was developed so plantings in the Western Hemisphere will no longer be subject to danger of devastation from leaf disease. Active extension work is going on in 11 tropical American countries to develop rubber production primarily by small growers.

Dr. Polhamus stated that a program of research also is being conducted in the United States, principally with guayule but including kok-saghyz and other promising plants. The primary aim of this program is to develop sources of rubber that could be available in emergencies.

Two Advanced by Marbon Corp.

Marbon Corporation, Gary, Ind., has announced the advancement of C. R. Holt to technical sales manager and H. H. Irvin to chief chemist. Mr. Holt joined the Marbon laboratories in 1947 as a rubber chemist and prior to that was assistant chief chemist of footwear at the Mishawaka plant of the U. S. Rubber Co. Mr. Irvin joined Marbon in 1943 as a chemical engineer and has since worked in the research laboratory. He was formerly associated with the Inland Steel Co.

Detroit Outing on June 24

The 1949 Summer Outing of the Detroit Rubber and Plastics Group will be held on Friday, June 24, at the Forest Lake Country Club in Pontiac, Mich. Golf and other activities will start at 12:00 Noon and dinner will be served at 7:30 P.M. Prizes will be awarded to winners of the various events.

Dr. Sebrell Leaves Goodyear

Dr. Lorin B. Sebrell

Dr. Lorin B. Sebrell, director of research and chemical products development of the Goodyear Tire & Rubber Co., has resigned from the company, effective June 1. He has been affiliated with Goodyear continuously since 1922 and has been research director for the past 21 years. Widely known for his research and development work in the field of natural rubber chemistry, particularly accelerators, and in synthetic rubber, plastics and organic chemistry, Dr. Sebrell was awarded the Charles Goodyear Medal of the ACS Rubber Division in 1943. He is credited with some 70 patents in the field of rubber chemistry and is the author or co-outhor of a score or more of published scientific articles. Dr. Sebrell is a native of Alliance, Ohio, and is currently living in Silver Lake, Ohio. According to Dr. R. P. Dinsmore, Goodyear vice-president in charge of research and development, Dr. Sebrell's position with the Goodyear organization will not be filled. Instead, the two divisions will report through their managers directly to him. Dr. H. J. Osterhof is manager of research and M. J. DeFrance is manager of chemical products development.

Goodyear Medalist Nominations

The Charles Goodyear Medal Committee of the Division of Rubber Chemistry, A.C.S., is interested in securing nominations from members of the industry for the 1950 Charles Goodyear Medal. Such nominations can be made by any member of the industry and will be considered by the Medal Committee. The nominators should set forth the achievements of the nominee and reasons why he is considered to be worthy of the honor. Nominations should be sent to the secretary of the Rubber Division, e.g., Charles R. Haynes, Binney & Smith Co., 41 East 42nd St., New York 17, N. Y. The winner of the 1949 Charles Goodyear Medal was Dr. Harry L. Fisher, of U. S. Industrial Chemicals, Inc.

ADDRESSES BY SEARER AND JONES FEATURE CHICAGO GROUP MEETING

The May 20 meeting of the Chicago Rubber Group held in the Hotel Morrison, Chicago, Ill., featured talks by J. C. Searer of Durez Plastics & Chemicals, Inc., North Tonawanda, N. Y., and M. E. Jones of the Marbon Corp., Gary, Ind. Mr. Searer spoke on the subject "Phenolic Resins in the Rubber Industry." Mr. Jones delivered a paper entitled "A High Styrene Reinforcing Resin—Marbon 8000," which he had prepared in conjunction with C. R. Holt and A. G. Susie, both of the Marbon Corp.

Mr. Jones discussed the specific properties offered to rubber compounders by the use of Marbon "8000." First, he said, easier incorporation and dispersion is possible with the uniform friable size and lower fluxing temperature of the resin; secondly, greater aids to processing both mixing and molding are offered because of the heat plasticizing action of the resin; and third, higher unit reinforcement can be expected in that higher hardness, greater stiffness, lower compression set, and better tear and flex-crack resistance are quite evident in finished compounds.

This higher unit reinforcement was graphically shown with slides prepared from test data on pure gum stocks, shoe sole compounds, and hard rubber stocks utilizing regular GR-S, low temperature GR-S and natural rubber with the Marbon "8000" resin. The speaker stated that the versatility of this resin cannot be denied, for its worth has been demonstrated with almost all the natural and synthetic rubbers.

Mr. Searer's paper was similar to one delivered before the Buffalo Rubber Group, meeting on March 22 at the Hotel Westbrook, Buffalo, N. Y., a report on which appeared in a recent issue.

Northern California May Meeting

The May 26th meeting of the Northern California Rubber Group, held at the Hotel Claremont in Berkeley, Calif., featured an "Information Please" panel discussion. The panel of experts consisted of Ross Morris (Mare Island Naval Shipyard), John Lilligren (Pioneer Rubber), Russ Kettering (Oliver Tire), and Joe Hollister (Mare Island Naval Shipyard). Don Good (American Rubber Mfg.) was moderator. The panel answered questions from the floor and questions which had been mailed in by members concerning the processing of cold rubber, storage of crude rubber, copper deterioration of rubber, methods of distinguishing among the various types of rubbers, compounding for water resistance, and many others. At a dinner preceding the technical meeting, plans for the forthcoming summer outing and golf tournament to be held on June 30, were discussed.

"Upholstering With Firestone Velon Flex" is the title of a new booklet recently published by the Firestone Plastics Co., Pottstown, Penna., describing Velon Flex, the company's plastic upholstering material.

SUCCESSFUL MEETING HELD BY ACS RUBBER DIVISION AT BOSTON

Approximately 800 members and guests attended the 54th Meeting of the Division of Rubber Chemistry, A.C.S., held at the Hotel Statler in Boston, Mass., from May 23 to 25. The meeting featured the presentation of twenty-five technical papers, more than half of which were devoted to low temperature polymers, the award of the Charles Goodyear Medal to Dr. Harry L. Fisher, a luncheon meeting of the 25-Year Club, a clambake, visits to rubber plants in the Boston area, a business meeting, and the usual divisional banquet.

The first "official" business was the meeting of the 25-Year Club, held at the Hotel Statler on Monday noon, May 23, with approximately 150 members in attendance. John Bierer (Boston Woven Hose), chairman of the session, announced that the next meeting of the club would be held at Atlantic City during the Fall Meeting of the Rubber Division, with Jack Coe (Naugatuck Chemical) as chairman. He also announced that a complete canvass of the Division membership had been made and that 257 had expressed interest in joining the 25-Year Club, all meeting the necessary qualifications of at least 25 years of service in the rubber industry.

Of the 150-odd attending the meeting, a stand-up call revealed that the majority present had over 30 years of experience in the industry. Of these, two had over 45 years' experience, viz., Charles Haynes (Binney & Smith) and Harold Fuller (Pequanoc Rubber), and one, Bill Kavenagh (Goodyear, Windsor), over 50 years.

Special guest of honor at the meeting of the 25-Year Club was Alfred A. Glidden, who retired as research director of the Hood Rubber Co. some two years ago. In recognition of his 56 years of experience in the rubber manufacturing field, Mr. Glidden was presented with a replica of the Paul Revere Bowl, the original of which was made by Paul Revere in 1768 and which bears the name of the Fifteen Sons of Liberty. Miniatures of the bowl given to Mr. Glidden was furnished to each member and guest present at the luncheon. Both the large replica and the miniatures were contributed by Godfrey L. Cabot, Inc.

Active Business Session Held

The divisional business meeting was held on Wednesday morning, May 25, with Dr. Howard A. Cramer, chairman, presiding. Members present stood for a minute with bowed heads in acknowledgment of the recent and untimely deaths of A. E. Boss (Columbia Chemicals) and Kenneth Easley (American Zinc Sales). A eulogy on Mr. Boss was delivered by Dr. Webster N. Jones (Carnegie Tech), a close friend and former associate at Goodrich. It was later voted to send a letter of condolence from the division to Mrs. Boss. (Editor's Note: Obituaries of both Mr. Boss and Mr. Easley appear elsewhere in this issue.)

Dr. Cramer announced that the Executive Committee has given its tentative approval for the sponsorship of an International Rubber Conference to be held in the Fall of 1950. If held, the Conference would substitute for the regular Fall Meeting of the Division and would probably be held apart from the regular meeting of the American Chemical Society. Details concerning the Conference have been left to the Division's Steering Committee.

It was also announced that the Executive Committee had approved publication of the 1944-45 Rubber Bibliography. A report was made to the effect that members were beginning to recognize and use the special rubber library maintained by the Division at the University of Akron, and the full membership was urged to take advantage of the special facilities offered.

Dr. Cramer also made reference to the fact that the next meeting of the Division would be held in Atlantic City, N. J., on September 21-23 in conjunction with the 116th National Meeting of the parent society, and issued a plea for papers. He stated that ladies would be invited to the divisional banquet in Atlantic City, as they were at Boston.

Harry Outcault, past chairman of the Division and current chairman of the Goodyear Medal Committee, invited the membership to make recommendations for the selection of the next Goodyear Lecturer. Such recommendations should be made to the secretary of the Division and should be accompanied by a short statement of reasons for the recommendation.

The Nominating Committee, headed by John Blake (Simplex Wire & Cable) as chairman introduced the following nominees for office for the 1949-50 season: *Chairman,* F. W. Staveley; *Vice-Chairman,* Seward Byam and J. H. Fielding; *Secretary,* Charles W. Haynes; *Treasurer,* C. W. Christensen. Regional directors were proposed as follows: *Akron,* A. E. Juve and H. F. Palmer; *Boston,* H. W. Atwater and Fred Amon; *Buffalo,* A. H. Davis and D. S. Messenger; *Chicago,* R. C. Dale and B. W. Hubbard; *Connecticut,* C. M. Doede and W. J. O'Brien, Jr.; *Detroit,* G. M. Wolf and Gordon Lindner; *Los Angeles,* R. D. Abbott and R. E. Hutchinson; *New York,* D. E. Jones and P. P. Murawski; *Northern California,* A. E. Barrett and H. J. Jordan; *Philadelphia,* L. K. Youse and F. M. Galloway; *Rhode Island,* F. H. Springer and A. D. Cummings; *Southern Ohio,* Jack Feldman and B. Adinoff.

Over 850 at Banquet

More than 850 members and guests attended the divisional banquet, held in the Ballroom of the Statler on Tuesday evening, May 24. The banquet was preceded by a very successful Suppliers' Cooperative Cocktail Party held in the Georgian Room of the hotel. The cooperation of some one hundred suppliers contributed to the success of the party.

Highlights at the banquet included the presentation of the Charles Goodyear Medal to Dr. Fisher, who is currently director of organic research of U. S. Industrial Chemicals, Inc., the presentation of the Goodyear Lecture by Dr. Fisher, and an address on "Air Power" by General George C. Kenney of the U. S. Air Force. A few introductory remarks were made by Chairman Cramer, including an expression of thanks to the members of the Local Arrangements Committee.

Prior to the presentation of the medal, Dr. John T. Blake gave a short and highly informative talk on "The Medalist and His Career." Harry Outcault, as chairman of the Medal Committee, presented the medalist to the chair, and Dr. Cramer conferred the medal. Dr. Fisher then presented his lecture on "Rubber Research and the Need for a Rubber Research Institute in the United States." (Editor's Note: A comprehensive report on the lecture will be found elsewhere in this issue.)

In his talk on "Air Power," General Kenney, who is commanding general of the Air University at Maxwell Field,

Alfred A. Glidden smiles happily as he receives a replica of the famed Paul Revere bowl. Left to right, John Bierer (Boston Woven Hose), Owen J. Brown, Jr. (Cabot), Mr. Glidden, and Jim Walton (Boston Woven Hose).

Alabama, challenged American scientists to develop new fuels, new metals, new bombs, and new instruments to equip the nation's fighting planes for supersonic warfare. Calling the TNT bomb of World War II and the airplane that carried it both out of date, General Kenney warned that this country needs a radar system "that will enable us to watch the whole world and see what it is doing," as well as fuels which will burn in the engine but which will not catch fire in combat or in crashes and metals which can stand up under the terrific heat encountered in jet power plants.

Smaller, lighter, more reliable radio equipment; a built-in position finder to direct guided missiles to specific targets at long range, and devices to detect enemy guided missiles and permit jamming of their radio controls were among other needed advances listed by the speaker. Aeronautical progress is continuing at such a pace, General Kenney emphasized, that mere numbers of planes no longer can be relied upon, but we must remain technically ahead of the field.

Other Activities at Boston

One of the features of the Boston meeting was the specially-arranged visits to rubber factories in the area. Hundreds of those attending the meeting took advantage of the opportunity to visit the plants of the Hood Rubber Co., Boston Woven Hose & Rubber Co., Dewey & Almy Chemical Co., and the Simplex Wire & Cable Co. Guides at each plant conducted groups through the plants and explained the numerous operations.

Another highlight of the meeting was the scheduled clambake at the Hotel Rockmere at Marblehead, Mass., on Monday evening, May 23. Through no fault of the hard-working committee, the clambake proved most disappointing, principally due to ill-prepared food. Most of the 500 members and guests attending the clambake were obliged to return to Boston for dinner. Libations at the clambake were furnished by the DuPont Rubber Chemicals Division and souvenir aprons were distributed by the Cabot organization.

The Local Arrangements Committee at Boston was headed by J. C. Walton (Boston Woven Hose & Rubber) as general chairman. Other committee personnel included the following: *Registration,* B. H. Capen (Tyer Rubber); *Finance,* H. W. Sutton (Boston Woven Hose); *Plant Trips,* H. A. Atwater (Hood Rubber); *Clambake,* G. W. Smith (DuPont); *Arrangements,* T. M. Knowland (Boston Woven Hose); *Ladies Program,* J. L. Haas (Hodgman Rubber); *Information,* R. K. Patrick (Vulplex); *Advisory,* J. T. Blake (Simplex Wire) and E. H. Krismann (DuPont); *Cocktail Hour,* O. J. Brown, Jr. (Cabot); *25-Year-Club,* J. M. Bierer (Boston Woven Hose).

Firestone has received the National Safety Council's Award of Honor for distinguished service to safety for the fourth consecutive year. The company is the only rubber concern that has received the award on a company-wide basis.

Chrysler Safety Cushion

A definite effort to minimize the seriousness of passenger injuries when an accident or sudden stop occurs has been made in the latest Chrysler automobiles. On the right side of the dashboard, extending from the right of the steering column to the right door, is a cushion of sponge rubber three-quarters of an inch thick. This cushion is covered with leather which harmonizes with the car's upholstery. The safety cushion is 37½ inches across and 2¼ inches wide.

Subpoena Files on U. S. Rubber

In connection with its investigation of the DuPont organization being conducted by a Federal Grand Jury, the government an May 26 asked for records of the DuPont family dealings in stocks of the U. S. Rubber Co. Subpoenas for the records were served on seven individuals and two companies, including the Rubber Securities Co. Specifically, the subpoenas requested the individuals and firms named to bring in all documents relating to a syndicate formed in 1928 to buy U. S. Rubber stock. The government has also demanded all papers relating to the transfer of U. S. Rubber stock to the Rubber Securities Co. in 1928.

Phoenix Absorbs Moldit, Inc.

The Phoenix Manufacturing Co., Joliet, Ill., has purchased the machinery and equipment of Moldit, Inc., of Frankfort, Ill., and has employed W. F. Bradley as general manager, Robert M. Beak as sales manager, and F. J. Bittermann as superintendent of its Rubber Products Division. In the future, this division will be known as the Moldit Division of the Phoenix Manufacturing Co., and will be located at Joliet. The products of Moldit, Inc., will be combined with those formerly produced by Phoenix's rubber division, which will considerably increase both the volume and number of employees. E. N. Gosselin is president and H. W. Reusch is vice-president of Phoenix Manufacturing Co.

New Offices for Ross & Roberts

Ross and Roberts Sales Co., Inc., have opened new offices and a show room in the Empire State Building, New York 1, N. Y., under the direction of Alvin V. Roberts, president. The firm functions as exclusive sales and technical field service representative for Ross and Roberts, Inc., West Haven, Conn., manufacturers of unsupported vinyl film to standard and individual specifications. Dr. Arthur M. Ross is president of the parent manufacturing concern, of which Mr. Roberts is vice-president.

RUBBER-PLASTIC LABORATORY FORMALLY DEDICATED AT MIT

A new laboratory for the study of rubber and plastic materials, equipped with research facilities provided by the Elastic Colloid Research Corporation, was formally dedicated at the Massachusetts Institute of Technology, in Cambridge, Mass., on May 25. Dr. Ernst A. Hauser will be director of the new facilities.

The laboratory will be associated with the R. S. Crawford Memorial Graduate Research Fellowship, which will be awarded to an advanced student to study rubber and plastic problems. The Crawford Fellowship, also provided by the Elastic Colloid Research Corp., will cover the tuition and living expenses of its holder. Morris I. Cohen has been awarded the initial fellowship.

Principal speakers at the dedication ceremonies included Dr. James R. Killian, Jr., president of M.I.T., Raymond Drake, president of the Avon Sole Co. and president of the Elastic Colloid Research Corp., Dr. Desiree S. le Beau, research director of the Midwest Rubber Reclaiming Co. and chairman of the ACS Division of Colloid Chemistry, and Dr. Hauser. Mr. Drake presented a check to Dr. Killian covering laboratory expenses for the 1949-50 period. In his address, Dr. Killian emphasized the point that fundamental rather than applied research will be followed in the new laboratory.

The Crawford Laboratory is equipped with the latest types of machinery and testing apparatus and provides facilities for a wide range of research in the field of elastic colloids, specifically natural and synthetic rubber. Equipment includes a laboratory Banbury, a two-roll Farrel mill, a Preco hydraulic press, Emerson flexing tester, Scott tensile tester, DuPont abrader, etc.

The Elastic Colloid Research Corporation was formed by the Rubber Heel and Sole Manufacturers Association in August, 1948, to correlate the fundamental research activities and interests of many of the independent rubber heel and sole companies. R. S. Crawford, for whom the new graduate fellowship is named, was director of the association for 14 years before his death in April, 1946. Robert Winters, the present director, acted as master of ceremonies at the dedication, while Mrs. R. S. Crawford, present by invitation, expressed her gratitude for the honor bestowed on her late husband.

The firms associated in the Elastic Colloid Research Corporation include the Avon Sole Co., Beebe Rubber Co., Bradstone Rubber Co., Cat's Paw Rubber Co., Gro-Cord Rubber Co., Hagerstown Rubber Co., Alfred Hale Rubber Co., Monarch Rubber Co., Panther-Panco Rubber Co., and Victor Products Corp. of Pennsylvania.

Harwick Standard Moves Offices

Harwick Standard Chemical Co. has moved its home office to a new office and warehouse building at Englewood Avenue and Seiberling St. in Akron, Ohio. The new mailing address of the company will be 60 South Seiberling St., Akron 5. The telephone number is Stadium 0481.

FISHER URGES ESTABLISHMENT OF RUBBER RESEARCH INSTITUTE

Establishment of a Rubber Research Institute in the United States to help the American rubber industry retain its world leadership was urged by Dr. Harry L. Fisher, director of organic research, U. S. Industrial Chemicals, Inc., Baltimore, Md., at Boston on May 24. The occasion was the presentation of the Goodyear Lecture by Dr. Fisher after he received the Charles Goodyear Medal of the Division of Rubber Chemistry, A.C.S.

The institute, as conceived by Dr. Fisher, would conduct fundamental studies on all rubbers, both natural and synthetic, and would be sponsored and controlled by the cooperating rubber manufacturers, although the government would contribute its support because the entire public would benefit from its work. A university setting would be best for such an institute, and Dr. Fisher suggested Cornell University, Princeton University, and the University of Illinois as desirable locations.

A research institute is needed in the rubber field, Dr. Fisher explained, because individual industrial organizations cannot carry on fundamental research on the scale required for the industry's continued progress. If more were known about the various types of rubber and their properties, he said, the manufacturing companies would be able to make them better, other companies could put them to better use, and as a result they would be manufactured to a greater extent.

"Industry is built on ideas and it needs the results of fundamental research—they are its life blood," he declared. "The time has gone by when a chemist could put his hand in the magic investigational hat and quickly bring out a new discovery or invention. We need more information, definite scientific information, in order to produce industrial miracles. Such fundamental information can best be obtained in our universities and research institutes."

Before World War II, he recalled, most rubber research in this country was conducted by industrial men who, no matter how much leeway they enjoyed, were inevitably handicapped to some extent by their companies' need for practical results. That the companies recognize the importance of fundamental research is shown, he added, by the increase in the number of fellowships established each year at universities to encourage this form of study.

Broad Program Is Needed

Asserting that "capital must be put back into the bank of knowledge from which every technologist is drawing in his daily work," Dr. Fisher said that a Rubber Research Institute would help greatly to put that capital back. To some extent, he conceded, this is now being done through the cooperative research and development program of the Office of Rubber Reserve, but that program is restricted to synthetic rubber. What is really needed, he contended, is an institute to carry out basic research on all types of rubber.

Noting that the strictly research phase of the Office of Rubber Reserve's technological program has cost only about $500,000 a year, Dr. Fisher said: "Since it is likely that the present government research program on synthetic rubber will be reduced considerably in the near future as the participation of industry is removed, the program could be continued by being allocated to the new research institute. The administration and responsibility for all fundamental research on rubbers would then be in the hands of private industry, with the government in a supporting rather than an initiating role."

Dr. Fisher, a nationally known authority on the chemistry of vulcanization, was presented with the gold medal by Harry E. Outcault, of the St. Joseph Lead Company, New York, chairman of the medal committee. John T. Blake, of the Simplex Wire and Cable Company, Cambridge, Mass., described the medalist's achievements. Dr. Howard I. Cramer, director of development of Sharples Chemicals Inc., Philadelphia, and chairman of the Rubber Division, was toastmaster.

Coming Events

June 24. Boston Rubber Group, Outing, United Shoe Country Club, Beverly, Mass.

June 24. Detroit Rubber & Plastics Group, Outing, Forest Lake Country Club, Pontiac, Mich.

July 1. ASTM Committee D-11, Annual Meeting, Haddon Hall Hotel, Atlantic City, N. J.

July 9. Chicago Rubber Group, Golf Outing, St. Andrews Golf Club, West Chicago, Ill.

July 23-24. Los Angeles Rubber Group, Outing, Catalina Island, Calif.

July 30. Buffalo Rubber Group, Outing, Lancaster Country Club, Buffalo, N. Y.

Aug. 9. New York Rubber Group, Golf Tournament, Winged Foot Golf Club, Mamaroneck, N. Y.

Sept. 18-23. American Chemical Society, 116th National Meeting, Atlantic City, N. J.

Sept. 22. Southern Ohio Rubber Group. Engineer's Club, Dayton, Ohio.

Oct. 7. Detroit Rubber Group, Detroit-Leland Hotel, Detroit, Mich.

Oct. 10-14. A.S.T.M., West Coast Meeting. Fairmont Hotel, San Francisco, Calif.

Oct. 14. Boston Rubber Group, Somerset Hotel, Boston, Mass.

Oct. 21. N. Y. Rubber Group, Henry Hudson Hotel, New York City.

Oct. 24-28. 37th National Safety Congress and Exposition, Chicago, Ill.

Dec. 9. Detroit Rubber Group, Detroit-Leland Hotel, Detroit, Mich.

Dec. 10. Southern Ohio Rubber Group, Miami Valley Golf Club, Dayton, Ohio.

Dec. 16. N. Y. Rubber Group, Henry Hudson Hotel, New York City.

Dec. 16. Boston Rubber Group, Somerset Hotel, Boston, Mass.

18,364,271 CASINGS PRODUCED IN FIRST 3 MONTHS OF 1949

According to the Rubber Manufacturers Association, 18,364,271 casings were produced in the first quarter of 1949, including 14,915,761 passenger casings and 3,448,510 truck and bus casings. This compares with 21,170,174 casings produced in the first quarter of 1948, of which 17,225,001 were passenger casings and 3,945,173 were truck and bus casings.

In the period ended March 31, 1949, 16,053,559 casings were shipped, of which 13,083,395 were passenger casings and 2,970,164 were truck and bus casings. In the comparable period of 1948, 13,313,321 passenger and 3,416,981 truck and bus casings were shipped, for a total of 16,730,302.

On hand at the end of the 1949 period were 10,669,721 passenger casings and 2,420,855 truck and bus casings, for a total of 13,090,576. These figures compare with 9,304,292 passenger and 2,053,005 truck and bus casings or a total of 11,357,297 casings shipped in the first quarter of 1948.

Passenger and truck and bus tubes produced during the first three months of 1949 totaled 15,931,721 units, compared with the 16,724,970 tubes produced in the first three months of 1948. In the first quarter of 1949, 14,505,491 tubes were shipped, against 14,650,318 units shipped in the comparable period of 1948. Tubes on hand as of March 31, 1949, totaled 11,230,827 units, compared with the 9,916,913 tubes on hand at the end of March, 1948.

Gates Technical Club Meeting

Approximately 90 members and guests attended the May 19 meeting of the Gates Technical Club at the Oxford Hotel in Denver, Colo. The main speaker of the evening was Dr. George Löf, Dean of Chemical Engineering at Denver University, whose topic was "Solar Heating." Dr. Löf discussed experimental stages of development and illustrated his points with slides of various units in houses built for research on this subject. The speaker stated that at the present time solar heating units can be installed in new house, in certain parts of the country, at a cost slightly above that of a regular heating unit. This differential in cost can be paid for by the savings over a period of approximately 15 to 20 years, the speaker added.

Goodrich To Build New Units

Two new finished-goods warehouses, providing 285,000 square feet of additional floor space, are to be constructed at the Miami, Okla., and Tuscaloosa, Ala., tire manufacturing plants of the B. F. Goodrich Co. The company said the new warehouse at Miami is scheduled for completion in November and will add 200,000 square feet to the plant, making it the second largest of all Goodrich tire-producing plants. Construction on the 85,000 square foot Tuscaloosa unit has already begun and will be the second addition to that plant since its completion in 1947, the company said.

Norwegian Rubber Production

Norwegian manufacturers of rubber products have increased their output considerably since the war and are now nearly able to meet the demand for most rubber goods, according to the U. S. Department of Commerce. Production in 1948 was estimated to have increased about 30% over the output in 1947, and was much higher than in prewar days. Production capacity is about 50% higher than it was before the war. Despite the considerable increase in production in 1948, it was not sufficient to offset a marked reduction in imports, and a shortage resulted in some rubber goods, particularly tires. Domestic production of tires is estimated to cover about 50% of the demand. Imports of truck, bus, and passenger tires in 1948 totaled 613 metric tons, compared with imports of 1,231 tons in 1947. Imports of tubes in 1948 amounted to 37 tons, whereas in 1947 they totaled 116 tons. An increase in imports of truck and bus tires is expected in 1949, as are also imports of basic raw materials. The chief source of supply for rubber products in 1948 was the United Kingdom, which furnished goods valued at approximately $1,000,000. Imports of such products from France was valued at about $500,000, and those from the United States at approximately $350,000.

View of the booth of the Eureka Rubber Co. (North) Ltd., of Johannesburg, South Africa, at the 1949 Rand Easter Show. The company exhibited its various mechanical goods, drug sundries, waterproof clothing, etc., and was awarded a diploma (certificate) for its exhibition. The Rand Easter Show, a trade show held annually, attracts visitors from all parts of the Union of South Africa.

CycLon NPC Plastic Coatings

A line of corrosion resistant plastic coatings developed especially for the finishing industry for the protection of machinery, processing equipment and general factory maintenance where corrosives are used has been developed by the Poly-Cyclo Products Co., Cleveland, Ohio. Termed Cyclon, series NPC, the coating is a high solids synthetic paint which air dries quickly by solvent evaporation to an adhesive, hard wearing, flexible glossy coating without the necessity of priming the surface being coated. CycLon coatings are said to be unaffected by all alkalies as well as by their salts and most mineral acids. In addition, they are inert to alcohols, soaps, water, oxidants, food and fruit acids, oils, aliphatic hydrocarbons, and other corrosive reagents. Cyclon films of only 0.002-inch thickness have an M-V-T rate of less than 2.0 grams per 100 square inches of area for 24 hours at 100% relative humidity.

Goodrich Barge Oil Hose

A new line of barge loading oil hose said to offer a number of advantages for barge and inland waterway loading and unloading has been developed by the B. F. Goodrich Co. The new hose is equipped with "Flex-seal" end and split flanges. Development of the new line was brought about by the endeavor to attain more speed in connecting and disconnecting hose lines so that the "tie-up" time of the barge will be appreciably lessened. No gaskets are required in the hose, say the makers, and the elimination of conventional heavy nipples and flanges brings savings in weight and allows the hose to be flexible from flange to flange.

Wright Wall Base Colors

Wright Manufacturing Co., Houston, Tex., has added five new colors to its Wright-On-Top Compression Cove Base, and three new colors in Wrightflor rubber tile. The new base color patterns will be gold-brown, green-cream, blue-cream, light gray-black-cream, and light brown-black-red-cream. Black base will continue to be manufactured in 4 x ⅛ inch, 4 x 3/16 inch, 6 x ⅛ inch, and 6 x 3/16 inch dimensions but the new colors will come in 4 x ⅛ inch size only. Three color patterns which have been used in Wrightex, Wright's soft rubber tile, will be added to the Wrightflor, hard surface rubber tile line. They are cream with green, blue and red marbleization. Wright Rubber Tile is made in standard 9 x 9 inch, 9 x 18 inch, 12 x 12 inch, 6 x 6 inch, 6 x 12 inch, and 18 x 18 inch sizes and in nonstandard 3 x 3 inch, 4 x 4 inch and 4½ x 4½ inch. Thickness is ⅛ inch for normal application and 3/16 inch for application where traffic is exceptionally heavy such as in elevators and entranceways.

Goodyear Mine Sprinkler Hose

The Mechanical Goods Division of the Goodyear Tire & Rubber Co. has announced a new safety mine sprinkler hose designed to improve safety conditions in underground mines. The new hose is constructed with high tensile rayon yarns, covered with tough, abrasive-resistant rubber stock. The bright yellow color of the hose is an additional safety feature. Conventional mine sprinkler hose has been made of black rubber in the past. The brightness of the new hose makes it easily discernible in dark mine shafts, enabling miners to find sprinkler valves easily and to prevent truckers from running over the hose.

Purchasing Research Project

The Purchasing Research Division of the Purchasing Advisory Guild, Woolworth Building, New York, N. Y., has formed a purchasing research project devoted to the interests and problems of purchasing executives in every line of business. This project has been established for the purpose of aiding purchasing representatives of U. S. business firms, foreign firms, foreign government purchasing commissions, purchasing agents of all cities and towns with populations of 10,000 or over in the U. S., and purchasing agents in all State Departments of the 48 States. To the aforementioned, the research facilities are extended free of charge.

Natvar Marvinol Tubing

The application of Marvinol VR-10 as the base material for a new plastic medical tubing which is reported to offer a number of advantages over the conventional latex rubber tubing is described in the February, 1949, issue of *The Martin Star,* house organ of the Glenn L. Martin Co., Baltimore, Maryland. The tubing described is made by the National Varnished Products Corp., Woodbridge, N. J. According to the article, the most decisive advantage of the plastic over the rubber tubing lies in its expendability, a feature made possible by the relative low cost of the vinyl resin.

Rubberset Purchases New Plant

Rubberset Co., Newark, N. J., has purchased a factory building located at Haynes Avenue and Route 1 in Newark from the Westinghouse Electric Corp. Rubberset has additional plant facilities in Newark and in Salisbury, Md.

NAMES IN THE NEWS

C. F. BONNET, formerly assistant general sales manager of the Industrial Chemicals Division of the American Cyanamid Co., has been appointed production manager of the Division. G. W. RUSSELL, formerly manager of the New Products Development Department, was appointed assistant sales manager of the division.

DR. S. M. MARTIN, JR., sales manager of the Thiokol Corp., Trenton, N. J., has been elected to the board of the directors of the company.

JOHN W. HUMPHREY, formerly executive vice-president of the Philip Carey Mfg. Co., Cincinnati, Ohio, has been elected president of the company succeeding ROBERT S. KING, who has been elected chairman of the board.

HERBERT O. HOFFMAN, factory manager of the Faultless Rubber Co., Ashland, Ohio, will be installed as president of the Ashland Rotary Club on June 28.

ALFRED FOSTER, previously associated with the Norwalk Tire & Rubber Co., Norwalk, Conn., as manager of the Storage Battery and Rubber Floor Tile Division, is now vice-president of the Rex Window Advertising Co., Inc., New York, N. Y.

DR. MAX H. THORNTON, associated with the Midwest Research Institute since 1945, has been named chairman of the Chemical Research Division of the Institute.

JOHN T. BLAKE, director of research, Simplex Wire & Cable Co., Cambridge, Mass., was recently elected chairman-elect of the Northeastern Section of the American Chemical Society.

DR. HOWARD E. FRITZ, vice-president in charge of research for the B. F. Goodrich Co., has been named a member of the National Committee of the Football Hall of Fame.

DONALD V. BRANDON, formerly assistant vice-president of Stein, Hall & Co., Inc., New York 17, N. Y., has been elected a vice-president of the company.

LOUIS R. JACOBS, production manager of the Premier Rubber Manufacturing Co., Dayton, Ohio, has been elected a director of the company. JOSEPH L. LEIBOLD, recently elected assistant secretary and treasurer, was also name a director of the company.

A. A. BLAESS, formerly sales manager of the Industrial Products Division of the Inland Rubber Corp., has joined the staff of the Minnesota Mining & Manufacturing Co., to handle market development of fabricated products.

WILLIAM R. EDWARDS, associated with the B. F. Goodrich Co. for some 20 years, has been appointed sales manager of the Johnson Rubber Co., Middlefield, Ohio.

C. H. MADSEN, formerly plant manager for the Canadian Synthetic Rubber Co., Ltd., Sarnia, Ontario, has been named plant manager of the synthetic rubber plant operated by the U. S. Rubber Co. at Borger, Texas.

M. J. SIMON, formerly superintendent at the Essex Wire Corp., Detroit, Mich., has been named superintendent of the company's plant at San Diego, Calif.

F. B. DAVIS, JR., former chairman of the board of the U. S. Rubber Co., has been elected chairman of the board of the National Distillers Chemical Corp., new chemical subsidiary of the National Distillers Products Corp.

W. K. GOSNELL, research chemist of the Goodyear Tire & Rubber Co., Akron, Ohio, has been named to assume similar duties at the company's latex creaming plant in Rengam, Johore, Malaya.

DR. JAMES R. DUDLEY, associated with the American Cyanamid Co. since 1940, has been appointed supervisor of new product development for the company.

BUDD E. POLLACK has been named secretary of the American Hard Rubber Co., New York 13, N. Y., succeeding ROBERT HARRY who retired recently.

J. H. FERGUSON, associated with the Bristol Co. since 1923, has been named district manager of the Akron, Ohio, branch office of the company.

LAWRENCE R. SPERBERG, associated with the Phillips Petroleum Co. for the past several years, particularly with the development of Philblack, has been named manager of market research evaluation of the Philblack Sales Division of the Phillips Chemical Co. He will have his headquarters at Bartlesville, Oklahoma.

D. W. DRUMMOND has been named vice-president and director of industrial chemical sales for the Mathieson Chemical Corp., New York 17, N. Y.

PROFESSOR PETER J. W. DEBYE, Nobel Prize Winner and head of the Chemistry Department at Cornell University, was awarded the J. Willard Gibbs Medal at a recent meeting of the Chicago Section of the American Chemical Society.

L. O. FIGLAND, formerly manager of the Goodyear Tire & Rubber Co. plantation in Costa Rica, has been appointed manager of the recently reopened Wingfoot plantation in Sumatra.

M. C. STEVENS, manager of the Akron office of A. Schrader's Son Division of the Scovill Manufacturing Co., retired recently after 24 years as head of that office.

DAVE FORBES, well-known rubber chemist, who recently returned to the United States after a visit to England and Scotland, has joined the staff of the American Rubber Corp. at Huntsville, Alabama.

BERNARD L. LANDERS, vice-president in charge of the Boston, Mass., office of Philipp Brothers Chemicals, Inc., was recently tendered a dinner and theatre party in celebration of his 25 years of association with the organization. He was presented with a large-screen television set and an engraved silver plaque.

J. N. VAUGHAN, formerly operating manager of the Firestone International Co., has been appointed manager of Firestone's export trade, with headquarters in Akron. H. M. BRUCKEN, formerly assistant operating manager, has been named operating manager of Firestone International.

DONALD L. MCCOLLUM, associated with the U.S. Rubber Co. since 1919, most recently as manager of reclaimed rubber at Naugatuck Chemical, has been named factory manager of the synthetic rubber plant operated by the company in Naugatuck, Conn.

ARTHUR P. KROEGER, assistant general manager of sales for the Organic Chemicals Division of the Monsanto Chemical Co., has returned to active duty following a year's absence because of poor health.

Felbeck Awarded Hyatt Medal

The John Wesley Hyatt Award for distinguished achievement in plastics was presented recently to Dr. George T. Felbeck, vice-president of the Carbide and Carbon Chemicals Corp., New York. Dr. Felbeck received the Hyatt gold medal and a one-thousand dollar cash prize at the annual meeting of the Society of the Plastics Industry. He received the award for the engineering developments leading to the large scale manufacture of polyethylene resins and plastics. Through his work, a plant was created during the war which supplied the United States Navy with the plastic vitally needed for the radar program. The award is made annually to an individual making an outstanding achievement in the plastics industry.

Lowell Insulated Wire For Sale

Due to the recent death of W. Bevan Dunsford, president and treasurer of the Lowell Insulated Wire Co., Lowell, Mass., the organization is being offered for sale. The firm has been in business for the past 46 years manufacturing flexible cords, electrical wires and power supply cords. The firm states that nearly $250,000 was recently expended on plant and equipment. Plant and assets of the organization, less inventory, are being offered for $175,000.

Mansfield To Produce Vinyl Film

Negotiations have been completed between the Mansfield Tire & Rubber Co., Mansfield, Ohio, and the American Texolite Co., for the production of vinyl film at the Mansfield plant. Production is scheduled to begin within the next few weeks, with approximately 100 men employed on the project. When in full operation, the plant will be the largest producer of vinyl film in the Middle West, officials said. Paul W. Kollar, vice-president of Texolite, will be permanently located in Mansfield and will be in charge of vinyl film manufacturing operations. Production will be entirely separate from the company's tire and tube manufacturing departments. Calender and mill units which the company maintained as stand-by processing equipment since its new processing plant was completed a year ago, will be converted to plastic manufacturing, and the operation will be conducted as a separate division of Mansfield.

Rubber Exports Show Decline

The value of United States exports of rubber, allied gums and manufactures in the first three months of the current year amounted to $31,799,576, a drop of 13.8% from the $36,881,772 reported for the corresponding 1948 period, according to a report from the U. S. Department of Commerce. Dollarwise, the greatest declines were in mechanical rubber goods—belting, hose, and packing—and in truck, bus and passenger car casings; percentagewise, the declines in mechanical rubber goods, passenger car casings, and footwear, soles and heels were the steepest. Synthetic rubber, aided by large March shipments, displayed a 62 percent gain over the 1948 period, and most of the remaining categories showed moderate gains. Exports of transportation goods (tires, tubes, camelback, and tire repair materials) accounted for 60.8 percent of the first quarter 1949 total, as against 58.5 percent in the same period of 1948.

Issue Consulting Service Directory

The 12th edition of its classified directory has been issued by the Association of Consulting Chemists and Chemical Engineers, Inc., 50 East 41st St., New York 17, N. Y. Now titled "Consulting Services," the new edition has been amended and enlarged to a total of 132 pages. Qualifications of each member are described in detail. Copies of the directory may be secured without cost from the Association.

Committee D-11 To Meet

The annual meeting of ASTM Committee D-11 on Rubber and Rubber-Like Materials will be held at the Haddon Hall Hotel in Atlantic City, N. J., on July 1. This meeting will be preceded by a number of subcommittee meetings on June 29 and 30 and the morning of July 1. The 52nd Annual Meeting of the parent society will be held in Atlantic City during the entire week of June 27.

LABOR NOTES

Negotiations between the B. F. Goodrich Co. and the United Rubber Workers opened in Chicago on May 24. The talks are the first to be undertaken with one of the "Big Four" in the union's drive for a fourth round of increases. The union is demanding a 25-cent-an-hour wage boost and pension and welfare benefits.

Final approval of the new contract between Local No. 3 of the U.R.W. and the management of the Ohio Rubber Co., Willoughby, Ohio, was reached on May 13. Following agreement on terms between the union's negotiating committee and the company management, the terms were submitted to the local's executive board, the general membership and the international union in Akron.

A company-wide pact covering workers in plants at Barberton and Carey, Ohio, was signed on May 5 between the Seiberling Rubber Co. and the U.R.W. The agreement covers mainly working conditions and does not revise the wage scale or other major economic issues. It does, however, permit reopening of the wage question at a later date.

Production at the textile mill operated by the Goodyear Tire & Rubber Co. at Rockmart, Georgia, has been cut approximately 90%. Curtailment was attributed to the high price of cotton and reduced orders. The mill at Rockmart is one of four operated by the company.

Rubber Consumption in April

New rubber consumption in April totaled 84,707 long tons and was about 7.5% lower than the March tonnage of 91,594 tons, according to the monthly estimate of the Rubber Manufacturers Association. Use of natural rubber during April showed a decline of 9.13% to 47,937 long tons, compared with 52,755 tons in the previous month. Consumption of synthetic rubber in April amounted to 36,770 long tons, a decline of 5.33% from the 38,839 tons used in March. The report showed that although total rubber consumption in April was at approximately the same level as in April, 1948, the natural rubber used was down 5.29% while the synthetic rubber used was up 6.17% when compared with the same month a year ago. Consumption of reclaimed rubber was estimated at 17,893 long tons in April compared with 19,342 tons the previous month, a decline of approximately 7.5%.

Heads All Firestone Research

Raymond C. Firestone, vice-president of the Firestone Tire & Rubber Co., has been placed in charge of research and development for the company. Mr. Firestone, who will maintain headquarters in Akron, was elected a vice-president of the company last January. In 1936 he was named manager of the Firestone plant in Memphis, Tenn., and since 1937 has served as president of the Firestone Tire & Rubber Co. of Tennessee. He has been a director of the parent company since 1942.

Stabilize Tire Yarn Prices

Through actions of the American Viscose Corporation and the North American Rayon Corp., followed by actions of the Industrial Rayon Corp. and the DuPont Rayon Division, the prices of rayon tire yarn have been brought into equal competitive position. Both American Viscose and North American had been selling 1100 denier yarn at 57c a pound and 1650 at 56c a pound, with transportation allowed. Both Industrial Rayon and DuPont Rayon had been selling these yarns at 55c and 54c a pound, respectively, plus transportation charges. On May 19, American Viscose announced a reduction of 2c a pound on its 1100 and 1650 denier yarns, which was immediately followed by North American. Subsequently, both Industrial Rayon and DuPont Rayon announced that these yarns would be shipped with transportation allowed. Consequently, all major producers of tire yarn are now quoting 1100 denier at 55c a pound and 1650 denier at 54c a pound, with transportation allowed.

Super Highway Truck Tire

Built especially for high speed, long distance service in over-the-highway hauling, the "Super Highway" truck tire developed by the B. F. Goodrich Co., Akron, Ohio, has a flatter design permitting greater road contact. The non-skid depth of the tread averages 13.5% deeper than standard tires and the crown thickness averages 21% more. The body is made with rayon cord and the company's exclusive nylon shock shield which is said to reduce the possibility of tread separation. Cords are the weftless, full floating even tension type. The company states that the tire is especially designed to give even wear on either free-rolling or power wheels. Extra tread grooves help dissipate heat and distribute flexing, and special dual-tread construction assures cool running with top mileage performance. The Super Highway is made in sizes from 8.25-20 ten ply rating through 11.00-24 twelve ply rating.

Trustee Sale on Cords, Ltd.

By order of the U. S. District Court, the entire assets of Cords, Ltd., were scheduled to be sold on the premises at 780 Frelinghuysen Ave., Newark, N. J., on June 15. Assets offered included real estate, machinery, molding department, stock, office furniture, etc. S. Arthur Stern, 17 Academy St., Newark, N. J., is the trustee, and John A. O'Grady, 15 Exchange Place, Jersey City 2, N. J., the auctioneer.

Wills Division in Full Operation

The Wills Division of the Ferry Machine Co., Kent, Ohio, has announced that it is now in full and regular production on the Wills "sub-zero" tumblers, high speed trimmers, "Wiltrim" circular knives, and dry ice crushers. The Wills Rubber Trimming Machine Co. was acquired by the Ferry Machine Co. early this year and is now being operated as a division of the parent company.

NEWS IN BRIEF

A very attractive catalog on its line of "Blue Bird" rubber balloons has been issued by the National Latex Products Co., Ashland, Ohio. A bibliographical sketch of the corporation's history is also included.

New gas masks with red and white rubber face pieces as a protection against all gases have been developed and introduced by the Davis Emergency Equipment Co., Newark, N. J. Considerably greater comfort is provided by the face pieces which are made of a special compound.

U. S. Rubber has published a new manual on its Hydron absorptive form lining used in the construction of smooth, durable concrete surfaces. It discusses methods of installation, relative costs, applications and specifications.

A means of cutting rubber-lined pipe at any point in the line and rejoining it, thus simplifying both assembly and maintenance of rubber-lined systems, has been developed by the Gates Engineering Co., New Castle, Del. The system employs special adapter fittings on standard pipe cutting machines.

Miller Art Mfg. Co., New York City, is featuring soft knitted cotton creepers for infants lined with lightweight, waterproof and stainresistant Vinylite plastic film to assure complete protection and eliminate laundry problems. The creepers are equipped with snap buttons for convenience.

Okonite Co. has opened a new office in the Tower Petroleum Building in Dallas, Texas, with Otis W. Herring as manager. The Dallas office will be under the supervision of the Birmingham District.

A factual, pocket size manual on its line of baskets, hampers and trucks is available from C. R. Daniels, Inc., Daniels, Md. Data on the full line, including specifications, is included.

The glare of summer sun coming through factory windows can be considerably reduced by a new plastic coating developed by the Minnesota Mining & Manufacturing Co. Called 3M Sun-Stop Strip Coating, the new material can be applied with spray gun or brush and produces an effect that helps diffuse light.

A technical bulletin on the use of Butex in GR-I (Butyl) compounds of graduated hardness has been issued by the Midwest Rubber Reclaiming Co., East St. Louis, Ill. Copies are available on request to the company.

The new chemical deer repellent introduced recently by the B. F. Goodrich Chemical Co. has been namd Good-rite z.i.p. and is now available in commercial quantities. It is said to effectively control the extensive damage done by deer to cultivated crops and orchards.

Hercules Powder has issued a new edition of the basic technical booklet "Ethyl Cellulose: Properties and Uses." The new edition contains considerable new as well as revised information about this versatile cellulose derivative.

A unique "color compass" has been developed by the Arco Co., Cleveland, to answer the long-felt need for simplifying the selection and use of color in maintenance painting in industrial plants. The "compass" reflects eight different color schemes.

Polyklen No. 822 is the name applied by Bauer & Black, Chicago, to a new plastic-backed electrical adhesive tape with a dielectric strength of over 10,000 volts. High frequency performance of the type is said to be unparalleled.

For the second consecutive year the Firestone Tire & Rubber Co. has received the Silver Medal of the National Garden Institute for sponsoring the largest and most comprehensive industrial garden program in the country. The company's garden program now includes some 2,400 gardens for employees in the Akron plants.

Millmaster Chemical Co., New York, has announced that isovaleraldehyde, an organic chemical with many interesting uses, which for many years has been available only in pilot plant quantities, is now in commercial production. It finds some application as a rubber accelerator.

U. S. Rubber's Footwear Division is currently sponsoring the juvenile television program "Lucky Pup" over the entire CBS network. Commercials on the program are designed to build sales for Keds dealers.

Manhattan Rubber recently produced what is believed to be the biggest rubber hose ever made in long lengths. The hose has an inside diameter of 18 inches and is furnished in 25-foot lengths. One length of the hose weighs 1,425 pounds.

Cycor 151 is the name of a new synthetic resin recently developed by American Cyanamid's Plastics Department for the binding of sand cores. It is said to produce water resistant cores which withstand high humidity and long layovers in molds.

A new leaflet under the title of "Commercial Chemical Development", answering various questions on the production and sale of chemical products has been issued by R. S. Aries & Associates, 26 Court St., Brooklyn 2, N. Y., specialists in commercial chemical development.

"Overcoming Bloom on Neoprene Vulcanizates" is the title of a recent technical bulletin (BL-229) issued by the DuPont Rubber Chemicals Division. Two methods for masking, inhibiting or eliminating bloom are presented.

A new, heavy duty rubber and fabric conveyor belt, manufactured by U. S. Rubber and said to be the longest coal slope conveyor in the world, has been placed into operation in Storrs Colliery near Scranton, Penna.

Continental Can Co. is presenting employing Geon latex as a protective exterior coating on its broad line of fibre shipping drums.

Slomons Laboratories, Long Island City 1, N. Y., has published a new adhesive chart and catalog providing an index to adhesive problems and company solutions.

Firestone, in conjunction with the American Motorcycle Association, is sponsoring a safety essay contest with prizes being awarded to cyclists who write the best 200 word essay on the subject "What Can Motorcycle Clubs Do to Make Riding Safer?"

Price reductions ranging from 3 to 14% on standard sump-pump motors, oil-burner motors, belt-drive fan motors, and certain horsepower ratings of standard jet-pump motors have been announced by the Fractional Horsepower Motor Divisions of General Electric.

Dunlop Rubber Co., Ltd., is selling approximately $2,000,000 worth of truck and bus tires to Yugoslavia under a British-Yugoslavian arrangement calling for the exchange of British manufactures for Yugoslavian food and grain.

American Brass Co., Waterbury, Conn., is manufacturing Sealtite electrical wiring conduit consisting of flexible, galvanized steel tubing covered with a protective jacket made from Geon plastic.

Westinghouse has made available an interesting booklet containing hints on electrical maintenance, devoted exclusively to electric brakes. Copies are available on request to East Pittsburgh, Penna.

A technical bulletin on the use of Indonex plasticizers in hose and cover compounds has been issued by the Indoil Chemical Co., Chicago. Ask for Circular No. 13-32.

U. S. Rubber has completed construction of a new warehouse in Chicago at South Pulaski Road and 42nd Street in the Central Manufacturing District. The new warehouse is a one-story building with 175,000 square feet of floor space.

Retires from Patterson-Ballagh

As announced in a recent issue, Jack C. Ballagh has retired from active participation in the management of the Patterson-Ballagh Division of the Byron Jackson Co., Los Angeles, Calif. Mr. Ballagh's industrial career is one of the sagas of the American scene.

Back in 1927 Jack Ballagh was employed as a salesman by the Johnston Pump Co. in Los Angeles. Associated with the same company as a draftsman was W. I. Bettis. Casual conversations between these two men revealed that Bettis owned a patent relating to the drilling of oil wells and although the rubber protectors covered by the patent were being manufactured and sold sales results were far from satisfactory. Specifically, the Bettis patent covered a rubber casing protector, the function of which was to keep the casing and drill pipe apart when the latter was rotating, and so avoid excessive wear during drilling operations.

It was not long before Ballagh had convinced Bettis that he could do a better sales job on the casing protectors. He first went to C. L. Patterson, who owned a small retread shop in Los Angeles, and interested him in the proposition. The original mold was secured and under Patterson's direction an improved compound was formulated and used in the production of new samples. The partnership of Patterson-Ballagh was organized and a contract entered into with Mr. Bettis. The new organization was all set to go.

Early Trials and Tribulations

Despite the fact that rubber casing protectors were in poor repute at the time, Jack Ballagh convinced an oil driller friend of his to try out the new casing protectors. After a series of trials they passed muster and word went down the line that a casing protector was available which really worked, and orders began dribbling in to the new firm. At that time the firm owned a single mold and used the rear of Patterson's retread shop as headquarters. But another problem was apparent immediately, i.e., the necessity of finding some simple installation method for the protectors. Here again Ballagh's ingenuity came to the fore and in due time a satisfactory expanding tool was developed.

For the next twenty years the firm of Patterson-Ballagh had its difficulties, but it continued to expand steadily. The validity of its patent was attacked time and again but its position proved secure. Several years ago the Byron Jackson Co. purchased an equipment company holding patents that appeared to complement the Bettis patent. A deal was made in which the patents were merged, and Byron Jackson acquired a minority interest in a new corporation formed from the original Patterson-Ballagh partnership. Today, the corporation operates a sizeable plant and is one of the leading suppliers of special rubber equipment to the oil industry.

Jack C. Ballagh

1948 Marburg Lecture Booklet

The 1948 Edgar Marburg Lecture on "Isotopes and Their Application in the Field of Industrial Materials," by Dr. Paul C. Aebersold, Chief, Isotopes Division, Atomic Energy Commission, has been made available by the American Society for Testing Materials, 1916 Race St., Philadelphia 3, Penna., in the form of a 28-page booklet. The major portion of the lecture covers the use of isotopes as tools for analysis with numerous specific applications cited. Copies of the booklet, in heavy paper cover, can be secured from the A.S.T.M. at $1.00 each.

Isovaleraldehyde Now Available

Isovaleraldehyde, which has heretofore been available in pilot plant quantities only, is now available in commercial quantities, according to the Millmaster Chemical Co., New York. The compound, whose formula is $C_5H_{10}O$, finds application as a rubber accelerator, as well as in the manufacture of pharmaceuticals and synthetic resins. Isovaleraldehyde has a boiling point of 92° to 93° C., a specific gravity of 0.785, and a normal density at 20° C. of 1.390. It is slightly soluble in water and is miscible with organic solvents.

Firestone All-Nylon Truck Tire

Firestone Tire & Rubber Co. has announced an all-nylon truck tire which is said to provide greater body strength, greater impact break resistance, more ton miles and more mileage than tires made with rayon cord. It is to be offered as a premium tire for highway and off-the-highway use. Two years ago, Firestone introduced what was said to be the first passenger car tire using nylon, following extensive experience in developing and building airplane tires with nylon cord.

U. S. Rubber Exports in 1948

United States exports of rubber, allied gums and manufactures during 1948 were valued at $132,416,077, a decline of 38.3% from the record $214,515,747 reported in 1947, the Department of Commerce reported recently. The 1948 total was just under the 1943 total of $133,937,814, and was substantially lower than the annual figures recorded in 1944 to 1947. However, it was more than twice as high as any other previous year, and dwarfed the 1935 to 1939 average of $28,841,232. Exports of synthetic rubber were much smaller in 1948 than in 1947. Nevertheless, they averaged $305,483 per month compared with $227,138 per month in the last half of 1947 when exports decreased sharply. Through June, 1947, GR-S was the principal synthetic rubber exported from the United States. Since that time, it has been surpassed by both neoprene and the N-type. Reclaim exports held up well in 1948, declining only 20.4% from the previous year. Shipments of transportation items declined 43.2% from 1947 and represented 59.8% of total exports, compared with 65% in 1947. Shipments of mechanical rubber goods declined 24.5%.

Electrical Adhesive Tape 163

The Industrial Adhesive Tape Department of Bauer & Black, Chicago 6, Ill., has developed a new electrical adhesive tape which is said to outperform ASTM friction tape more than eight ways. The company states that Electrical Adhesive Tape No. 163 has a higher dielectric strength, 200 volts; is a better moisture barrier; is thinner, yet has equal tensile strength; has a higher tack; is cleaner; unwinds easier; is non-fraying and sticks firmly to any clean, dry surface. No. 163 has bulk-free insulation qualities resulting from its high dielectric strength combined with exceptional thinness.

Koppers New England Office

The Chemical Division of the Koppers Co., Pittsburgh, Penna., has opened a New England sales office located at 250 Stuart St., Boston, Mass. J. W. LaBelle, formerly in charge of Boston sales for the Chemical Division's Eastern District, has been named manager of the new district. Creation of the new sales office came as the Eastern District sales territory with headquarters in New York was divided into the New York district and the New England district. The new district will consist of all of New England in addition to a portion of New York State.

Ortac All-Purpose Hose

The Mechanical Goods Division of the Goodyear Tire and Rubber Co., Akron, Ohio, has announced the development of a new all-purpose hose. Named "Ortac," the new hose product is said to be capable of carrying air, water, oil, gasoline and acids of low concentration and temperature. The hose is made with vertically braided rayon carcass and oil-resisting synthetic tube, friction and cover. It is being manufactured in sizes from 3/16-inch to 1½-inch inside diameter.

New O.T.S. Subject Index

A new subject index and abstract collection of more than one thousand scientific and technical reports prepared by the Combined Intelligence Objectives Subcommittee and dealing with European technology may now be obtained from the Office of Technical Services of the Department of Commerce. Of interest to librarians and technical research workers, this publication of the Joint Chiefs of Staff is the first of a series of such volumes. They eventually will include reports of the British Intelligence Objectives Subcommittee (B.I.O.S.) and Field Intelligence Agency Technical (F.I.A.T.) as well as a group of minor reports, all dealing with the technical findings of Allied investigators in Germany and occupied Europe since the war. The current volume lists reports in 33 major categories and some 80 additional subcategories. Reports with broad importance are listed under more than one category. Copies of the new index (PB-96941, J.I.O.A. Subject Index: C.I.O.S. Vol. 1), which is 270 pages in size, sell for $3.00 each. Orders should be addressed to the Office of Technical Services, Department of Commerce, Washington 25, D. C., and should be accompanied by check or money order payable to the Treasurer of the United States.

Michigan Chemical Names Officers

Roy N. Wismer was elected president of the Michigan Chemical Corp., St. Louis, Mich., at a recent meeting of the board of directors. Col. T. C. Davis, formerly president, was named chairman of the board. R. A. Bondurant, general manager of the concern, has also been named executive vice-president. L. D. Simmons, formerly production manager, was elected vice-president in charge of operations and assistant to the executive vice-president. A. M. Byers was also elected a vice-president. Paul W. Blume was named secretary and C. G. Woods was elected comptroller and treasurer.

Goodyear Appoints Velveray Corp.

Goodyear Tire & Rubber Co. has entered into a contractual agreement with the Velveray Corp., New York, naming the company as a national distributor of Goodyear vinyl film. Goodyear manufactures the vinyl resin at Niagara Falls, N. Y. The resin then is shipped to the company's plant at Akron, where it is made into the actual film. Velveray then takes the finished vinyl film and indelibly prints whichever pattern is desired and also handles the decorating, styling, merchandising and selling. Velveray has plants at Clifton, N. J., and Fall River, Mass.

DuPont Expanding PVA Facilities

E. I. du Pont de Nemours & Co., Inc., has authorized a project of approximately $3,000,000 to expand facilities for manufacturing polyvinyl alcohols at the Niagara Falls, N. Y., plant of the Electrochemicals Department. Construction is expected to be started shortly and the new continuous process plant should be ready for operation sometime next year.

Synthetics Pass Cotton

Use of synthetic fiber in tire cord passed cotton for the first time in the fourth quarter of 1948. Use of rayon and nylon totaled approximately 65 million pounds as against some 64 million pounds for cotton. The synthetic actually backed into the top spot, since the use of cotton declined steadily during 1948 while the consumption of rayon and nylon was comparable with that of the previous year.

Chlorinated Hydrocarbon-70

Development of a series of new chlorinated hydrocarbons has been announced by the Pennsylvania Salt Manufacturing Co., Philadelphia, Penna. The first of the series, known as Chlorinated Hydrocarbon-70, is a clear, viscous resinoid, with good thermal stability and showing no hydrolysis during 16 hours' contact with water at room temperature and at 100° C. Chlorinated Hydrocarbon-70 has no flash point and no fire point and is compatible with such resins as vinyl chloride, styrene and rosin. At room temperature it is completely soluble in most alcohols, ketones and hydrocarbons. The product has properties which suggest its use as a plasticizer, as a flame retardant, in the manufacture of adhesives, and in other formulations for the impregnation or coating of wood products, textiles and paper. Laboratory reports indicate that no adverse effects were noted when human and animal subjects were exposed to the product or to its vapors.

Vinylite Plastic Dickie

The Lukrite Plastics Sales Co., P.O. Box 33, Boston 17, Mass., is producing a new plastic shirt front made of Vinylite. The new plastic dickie is designed for use by tuxedo and white tie and tails wearers as well as for waiters, doormen, and others who wear the dickie front as part of their working uniform or dress. Gravy stains and other spots may be quickly removed with a touch of soap on a damp cloth.

Test Cold Rubber in Footwear

Cold rubber, now used in a limited number of passenger car treads, is being tested in rubber footwear by the Hood Rubber Co., Watertown, Mass. Cold rubber has been found to possess greater resistance to abrasion in tire tread testing, and preliminary tests indicate it may show the same properties in relation to footwear.

Gimber Named Astlett Agent

H. A. Astlett & Co., New York 5, N. Y., has appointed C. F. Gimber as New England representative of the company. Mr. Gimber will be located at 88 Broad St., Boston 10, Mass. The appointment was effective as of April 1.

Osborne Talks On Geon Latices

A variety of coating machines are suitable for applying Geon latex coatings to paper and boxboard, E. B. Osborne, technical service engineer for the B. F. Goodrich Chemical Co., stated recently before the Chicago section of the Technical Association of the Pulp and Paper Industry. Geon latices, produced by Goodrich Chemical, can be handled on knife coaters if the viscosity is increased to approximately 1200 centipoises, he said. This is about the minimum viscosity which can be used and has also been found to be most satsfactory. Spray coating equipment can also be used to apply Geon latices, Mr. Osborne said. A third method of applying these latices to paper and boxboard is roller coating. Two coaters used successfully are the doctor kiss coater and the reverse roll coater. The coating is applied by a roll which is followed by a knife that meters and smooths the coating. It has been found that the most suitable range for viscosity of Geon latices for use on the reverse roll coaters is 800-900 centipoises. Still another type of machine that can be used to apply Geon latices is the familiar brush coater, the speaker noted. The most suitable machine, however, to apply latex coatings to paper products is the air knife type coater, Mr. Osborne said.

Firestone Film on Liberia

A colorful documentary film, "Liberia, Africa's Only Republic," featuring intimate glimpses of native life and customs on the vast American-operated rubber plantations in this West African Republic, has been released for general distribution by the Firestone Tire and Rubber Co. A 16 mm sound on Kodachrome, the picture of 2½ reels requires 27 minutes running time. A companion film, a 55 minute version under the same title, which has been shown to many groups, also is available for general release. The films may be obtained, free of charge, by schools, churches, and other organizations by writing the Public Relations Department, Firestone Tire and Rubber Co., Akron, Ohio.

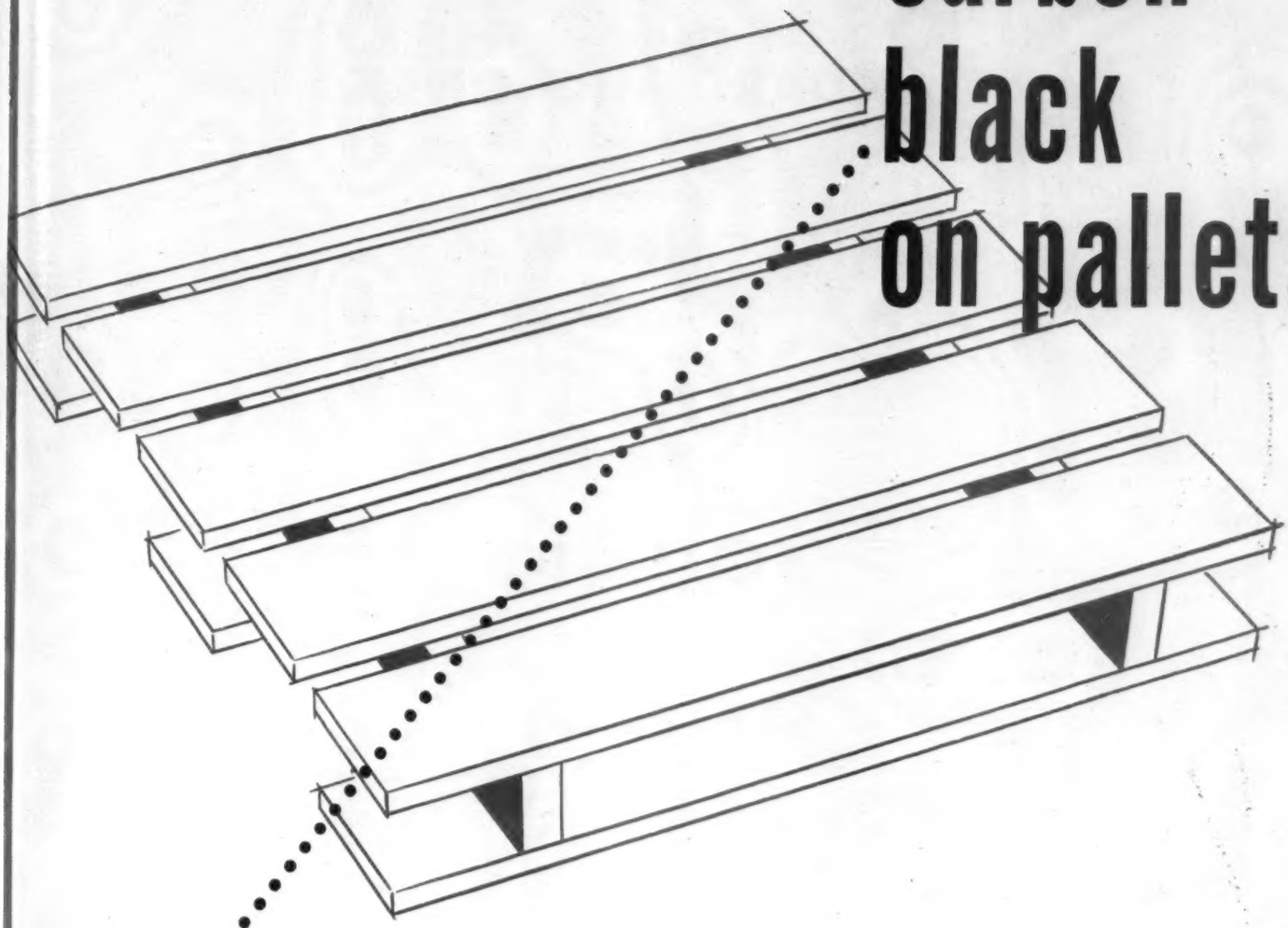
Offers Bulletin On Silvacon

Weyerhaeuser Timber Co., Longview, Wash., has made available a technical bulletin on Silvacon, a series of individual raw materials such as cork, particles, lignified fibers and amorphous powder, separated from tree bark for industrial uses by special processes. The material finds use as an extender in rubber compounds and in thermosetting molding compounds. The bulletin may be obtained by writing the Lumber Division, Bark Products Department, Weyerhaeuser Timber Co., Longview, Wash., or from the Harwick Standard Chemical Co., Akron, Ohio.

Chicago Plans Summer Outing

The annual summer outing of the Chicago Rubber Group will be held on Saturday, July 9, at the St. Andrews Country Club. Al Lawrence, local representative of the Phillips Petroleum Co., will be chairman of the outing.

carbon black on pallets



...any type carbon

If you are interested, the knowledge that we have gained in this new handling technique is at your service.

COLUMBIAN CARBON COMPANY

500 TONS OF SMOKE A DAY

COLUMBIAN CARBON CO. • BINNEY & SMITH CO.

Manufacturer · Distributor

MPC (Medium Processing Channel)
STANDARD MICRONEX

◆

EPC (Easy Processing Channel)
MICRONEX W-6

◆

VFF (Very Fine Furnace)
STATEX-K

◆

FF (Fine Furnace)
STATEX-B

◆

FEF (Fast Extruding Furnace)
STATEX-M

◆

HMF (High Modulus Furnace)
STATEX-93

◆

SRF (Semi-Reinforcing Furnace)
FURNEX

◆

COLUMBIAN CARBON CO.
MANUFACTURER

BINNEY & SMITH CO.
DISTRIBUTOR

TECHNICAL REPORTS AVAILABLE FROM DEPARTMENT OF COMMERCE

Data on additional reports on industrial and technical developments which occurred throughout the world during the wartime period are listed below. This information is taken from the "Bibliography of Scientific and Industrial Reports," issued by the U. S. Department of Commerce. Orders for reports, at the prices indicated, in *photostat* or *microfilm* type of reproduction should be addressed to the Library of Congress, Photoduplication Service, Publication Board Project, Washington 25, D. C. Check or money order accompanying orders for microfilm or photostat reports should be made payable to the Librarian of Congress. Orders for reports available in *printed* form should be addressed to the Department of Commerce, Office of Technical Services, Washington 25, D. C. Check or money order accompanying orders for printed reports should be made payable to the Treasurer of the United States. Titles of the more recent reports follow:

The Bonding of Rubber to Metal: Interrogation of Dr. Kurt Ueberreiter and Dr. Ernst Asbrandt. Information is presented concerning the brass method and the Desmodur method. Both methods give an adhesion of about 50 kg./cm², the brass method being considered preferable on the grounds of care and simplicity. Report No. PB-L-87343. 2 pp. Microfilm, $1; Photostat, $1.

Isomerization of Vinylcyclohexane. (In German). This report describes the catalytic isomerization of 1-vinylcyclohexane-(3), obtained by dimerization of butadiene which gave a small yield of about 10% of conjugated isomer 1-vinylcyclohexane when heated to 300°C. with HCN as a catalyst. An English summary is provided. Report No. PB-L-85653. 5 pp. Microfilm, $1; Photostat, $1.

Heat Resistance of Perbunan Compounds: Interrogation of Dr. Stocklin. Dr. Stocklin was questioned on the following methods: (a) of imparting good heat resistance to Perbunan compounds, (b) of obtaining low compression set, (c) of avoiding high shrinkage after mold vulcanization of mixtures of GR-S with large amounts of natural rubber, and (d) he was asked whether dermatitis due to Buna S or Perbunan had ever occurred in Germany. Report No. PB-L-86690. Microfilm, $1; Photostat, $1.

Index of Rubber Reserve Microfilm Reel 5841-1 This index, which has been prepared by the Office of Technical Services, lists the 168 individual reports contained in the first of ten microfilm reels prepared under the auspices of hte U. S. Office of Rubber Reserve. It lists the PB number, Rubber Reserve number, author, and the German title with the English translation. The individual reports appear in this issue as PB-35000 to PB-35167. Report No. BP-13321. 22 pp. Microfilm, $1; Photostat, $2.

German General Rubber Goods Industry. Part III. Factory Layout and Plant. A total of 33 targets were inspected in the British and American zones. Technical information concerning factory lay-out and plant is given. 184 photographs and drawings are appended. Report No. PB-L-87908. 422 pp. Microfilm, $7; Photostat, $43.

Koresin Manufacture. (In German). This file contains letters and reports on "Koresin" manufacture, a bonding agent used in the production of tires from Buna. Detailed information is given concerning starting materials, process, equipment, yield, cost, etc. A summary in English is provided. Report No. PB-L-85657. 175 pp. Microfilm, $4.25; Photostat, $14.

General Summary of Production and Use of Reclaimed Rubber in Germany. The data appearing in this report was compiled by the United States members of the mission of representatives from American, Canadian and British rubber industries who investigated the German plants soon after the fall of Germany. Report No. PB-L-86006. 14 pp. Microfilm, $1.25, Photostat, $2.

Developing Uses for the Distillation Residues from Butadiene Obtained by the Reppe Synthesis. This report covers the products which may be manufactured from the distillation residues of butadiene by employing the "Reppe" process. The simple and practicable utilization of these materials in the plant is discussed. Report No. PB-L-86961. 8 pp. Microfilm, $1; Photostat, $1.

Various Studies on Copolymers and Ingredients for Copolymerization. This report is made up of (a) an annual German report for 1942 covering various studies on copolymers and ingredients for copolymerization, and (b) two reports from the central rubber laboratory on high pressure polymerization and on iron salts as degradation catalysts. Report No. PB-L-86959. 13 pp. Microfilm, $1.25; Photostat, $2.

Synthetic Rubber and Allied Subjects. This report documents the results of a Dutch investigation into synthetic rubber operation at I. G. Farbenindustrie, Leverkusen. Isocyanates, chlorinated rubber, and Desmodur R and T are some of the subjects covered. Report No. PB-93642. 48 pp. Microfilm, $2.50; Photostat, $6.25.

Electrical Aspects of Buna With Some Notes on Other Dielectrics. By G. M. Hamilton and A. A. New. This report examines buna rubber as to its electrical and dielectric properties as produced at I. G. Farbenindustrie at Leverkusen, and Dynamit A. G., at Troisdorf. The report is divided into two parts. Part I, Report No. PB 94558. 318 pp. Microfilm, $9; Photostat, $40. Part II, Report No. PB-94559. 488 pp. Microfilm, $9; Photostat, $61.25.

Influence of Cloud Points of Coumarone-Indene Resins on Their Use in Rubber Compounding. Coumarone indene resins of varying cloud points were investigated in several rubbers. The results are outlined in this report which states that it has been found that the cloud point is more reliable than melting point as an index of the plasticizing action of the resin. There is a critical cloud point, varying with the type of rubber, at which no change of plasticity occurs over a limited concentration range. Report PB-92490. 5 pp. Microfilm, $1.25; Photostat, $1.25.

German Synthetic Rubber Mechanical Goods. This report consists of a summary of synthetic rubber, its uses and products, in Germany. A number of tables are included with the text. Report No. PB-92006. 14 pp. Microfilm, $1.75; Photostat, $2.50.

Production of Monomeric Styrene at Chemische Werke, Huls. The story of the production of styrene at a particular plant in Germany is told in this report. Diagrams, fold drawings, graphs and tables accompany the text material. Report No. PB-94624. 399 pp. Microfilm, $9; Photostat, $50.

Standards for Rubber Pipes and Fittings (In German). The standards for German rubber hose and fittings are considered in this report. Report No. PB-91422. 1 p. Microfilm, $1.25; Photostat, $1.25.

Cellular Rubber and Plastics. Some of the subjects covered in this report include Desmodurs, Holtopren and sponge rubber. The report includes photographs, diagrams, graphs and drawings. Report No. PB-93484. 138 pp. Microfilm, $5.50; Photostat, $17.50.

The Production of Buna. Individual articles on the production of synthetic rubber through the years 1942 to 1945 are included in this report. Report PB-4687s. 2pp. Microfilm, $1.25; Photostat, $1.25.

Hood Arrazin Carpet

A resilient rubber-backed floor covering with a simulated broadloom design surface has been developed by the Hood Rubber Co., a division of the B. F. Goodrich Co. Developed for use where carpeting is difficult to maintain, the new product, called Hood Arrazin Carpet, is being produced in five colors and three thicknesses. Company officials said that although the product is heavy-duty carpeting, it has the appearance of broadloom. The long-wearing embossed surface is made from Geon resins, with cushioning provided by a cellular rubber base. The floor covering has been tested for a year in trains, airplanes, elevators and other places where heavy pedestrian traffic, noiselessness, foot comfort and ease of maintenance are important considerations, company officials pointed out. Hood Arrazin Carpet is made in 36-inch rolls and is cemented to the floor during installation.

COPOLYMER CORP. MARKS CONVERSION TO LOW TEMPERATURE POLYMERS

Special ceremonies and an open house program were held in Baton Rouge, Louisiana, on May 24, to commemorate complete conversion of the government-owned synthetic rubber plant to the production of low temperature polymers. The Baton Rouge plant is operated by the Copolymer Corporation, which, in conjunction with the Phillips Petroleum Co., acted as hosts for the occasion. The ceremonies included the presentation of several addresses, as well as a luncheon at the Baton Rouge Country Club and an informal dinner at the Roosevelt Hotel in New Orleans.

The Copolymer Corporation was formed in 1942 by a group of eight medium-sized competitive tire manufacturers. These include the Armstrong Rubber Co., Dayton Rubber Co., Gates Rubber Co., Inland Rubber Corp., Lake Shore Tire & Rubber Co., Mansfield Tire & Rubber Co., Lee Rubber & Tire Corp., and Sears, Roebuck & Co. The Baton Rouge plant covers 27 acres and was built at a cost of $7,500,000. It has a production potential of 30,000 tons a year, all of which has now been converted to the production of 41° F. rubber. The recipe developed by the Phillips Petroleum Co. is used.

Other "Cold Rubber" Plants

The Baton Rouge plant is one of many government-owned plants being converted to the production of "cold rubber" and by the end of the year it is expected that approximately 60% of all general-purpose synthetic produced will be of this type. On May 16 the U. S. Rubber Co. announced that it had completed, ahead of schedule, the installation of equipment needed to produce its share of "cold rubber" at the Borger, Texas, plant. Production of "cold rubber" was inaugurated at the government-owned plant at Lake Charles, Louisiana, operated by the Firestone Tire & Rubber Co., on May 18.

Benefits to Motoring Public

One of the major addresses at the Baton Rouge ceremonies was made by A. L. Freedlander, president of the Dayton Rubber Co. and of the Copolymer Corporation. Mr. Freedlander stated that cold rubber has freed the Western Hemisphere from dependence upon foreign sources for rubber supplies, and, at the same time, it is reducing the American motorist's annual tire bill at the rate of millions of dollars a year. He called tires with cold rubber treads "the biggest bargain in tire history," emphasizing that "cold rubber tires cost no more, yet the tread mileage for the average motorist is at least 30% better."

Considerable Savings Seen

The Copolymer president went on to explain that "if all the replacement passenger tires sold in 1948 were made with cold rubber treads, the American motorist would have saved $205,000,000 in that year alone. This figure is based on retail tire sales alone and is exclusive of original equipment tires sold in that year. The American motorist also benefits from the safety factor because the non-skid on the tread wears longer. Two-thirds of the thickness of the passenger tire tread is non skid."

Mr. Freedlander lauded the spirit of cooperation which has existed among the operating companies and praised the Office of Rubber Reserve of the Reconstruction Finance Corporation under which Copolymer operates. "Rubber Reserve, its director and its staff, as well as the directors of the R.F.C., deserve not only our appreciation, but that of the American public for their efforts, and encouragement in their continual search for better rubber," he said.

Blocks of Cold Rubber Being Conveyed to Shipping Room.

Development of Cold Rubber

Dr. W. B. Reynolds, supervisor of synthetic rubber development of the Phillips Petroleum Co., Bartlesville, Okla., speaking on the "Development of Cold Rubber," said that in the future, natural rubber will probably be reduced to a supporting role in the American rubber industry. Thanks to cold rubber, he said, the quality and cost battle with the natural product is running in favor of the synthetic.

The speaker reviewed the basic development of low temperature synthetic, mentioning the early Redox recipes which were obtained from Germany, and improvements in these recipes effected at the Universities of Cincinnati and Minnesota. The real "punch" that put cold rubber across so successfully, according to Dr. Reynolds, was the development by Phillips of a new type of furnace black having an abrasion resistance superior to channel black. When combined with the new low temperature rubber, this black produced tread compounds which resisted abrasion and cracking better than any compounds previously studied in the Phillips laboratories.

After cold rubber had been proven a workable commercial process, said Dr. Reynolds, the Copolymer Corporation converted one-half of the Baton Rouge plant to production of 41° F. rubber and production began in February, 1948. The speed with which Copolymer acted in adopting and producing the new rubber has set a precedent for the entire industry, he said. The future of the American synthetic rubber industry is very promising. It seems entirely possible that synthetic rubber will someday make the rubber tree obsolete, he concluded.

Hulings Describes Progress

Some of the early problems encountered by Copolymer in the production of low temperature synthetic were detailed in an address by Col. C. M. Hulings, operating vice-president of the company. Col. Hulings paid special tribute to the Phillips Petroleum Co. for its outstanding research

An Aerial View of the Copolymer Plant at Baton Rouge, La.

and development work in the cold rubber program, and added that the paper presented by Phillips on February 10, 1947, before a Rubber Reserve technical meeting was instrumental in getting the Copolymer Corporation started on its own cold rubber efforts.

According to Col. Hulings, Copolymer decided to produce cold rubber on March 7, 1947, and the first batch was completed on May 24. Test tires were built and the results showed specially activated GR-S-10 at low temperatures produces general-purpose rubber of greatly improved properties and at approximately comparable costs. Directors of the Copolymer Corporation followed this up by a decision to request Rubber Reserve permission to convert one-half of the Baton Rouge plant to cold rubber production.

In the latter connection, Col. Hulings emphasized the point "that the data which enabled the Copolymer directorate to make this decision was equally available to all rubber companies, yet this widely separated group of eight companies unanimously reached a decision on cold rubber a year earlier than some of the others. All the rubber companies finally arrived at the same decision."

Equipment for conversion was designed and installed largely by Copolymer itself. "Had we waited for a formal design and equipment manufactured to specifications, we would have waited many months longer for our installation. Today our plant has the most modern equipment, and, in principle, is being copied by all the other cold rubber installations which are now being made elsewhere."

Predicts Greater Advances

In a special address, Charles F. Kettering, of the General Motors Corp., said that the development of low temperature synthetic rubber is of the greatest importance to the economy of the nation. This development, he stated, makes us independent of outside sources. Of the three items which make the automobile possible, steel, petroleum and tires, only the tires cannot be replaced by some other material.

The speaker suggested that the present developments in synthetic rubber were only the beginnings of greater advances, ushering in a new system of hydrocarbon chemistry.

Names New England Representative

Frank Andrews, sales manager of the Sid Richardson Carbon Co., Fort Worth, Texas, recently announced the appointment of the Harwick Standard Chemical Company of Akron, Ohio, as its New England representative for the sale of Texas E and Texas M Channel Blacks. C. A. Meyer is in charge of the Harwick Standard Boston Office, which he established in 1945, and will continue to operate from their present location at 404 Chamber of Commerce Building, Boston 10, Mass. Mr Meyer is well known in New England, having been directly connected with several of the rubber manufacturers and the rubber industry for twenty-five years. He is a member of the American Chemical Society and is connected with the several rubber groups in the New England area.

Fritz Awarded Lamme Medal

Dr. Howard E. Fritz

Dr. Howard E. Fritz, vice-president in charge of research of the B. F. Goodrich Co., has been named 1949 winner of the Lamme Metal of Ohio State University. The medal was presented at the spring-quarter commencement on June 10. The award is made each year to a graduate of one of the university's technical departments for "meritorious achievement in engineering of the technical arts." Dr. Fritz is credited with leadership in the development of rubber products for specific needs in the chemical engineering industries. He pioneered in the adoption of rubber-lined steel products for the handling of corrosive materials. At the same exercises on June 10, John L. Collyer, president of the B. F. Goodrich Co., received an honorary Doctor of Laws degree for outstanding achievement in the rubber industry.

Beach Heads Vulcanized Rubber

Prescott Beach, for 10 years secretary and a director of the Vulcanized Rubber and Plastics Co., New York 16, N. Y., was recently elected president of the company succeeding Stanley H. Renton who was elected chairman of the board. Mr. Beach has been associated with the company since 1933. At the same time, John J. Noble was elected first vice-president of the company. Other chief executives are: A. O. Redland, vice-president, treasurer and controller; Hilda Pfister, secretary; Nicholas J. Jammal, works manager; C. P. Morgan, director of research and development, and H. L. Smith, Jr., general sales manager.

Seeking Merger Approval

National Automotive Fibres, Inc., Cohoes, N. Y., and California Cotton Mills Co., Oakland, Calif., are arranging a merger on the basis of the holder of each share of California Cotton receiving 7/10 of a share of National Automotive stock, if the proposals of both boards of directors are adopted. Steps to this end have been initiated and it is expected that some time next month formal advice concerning the proposal will be sent to stockholders. Meetings to pass on the proposals will be held in Oakland, Calif., on July 12.

Appointments at Glenn L. Martin

Three additional members have been added to the sales staff of the Chemical Division of the Glenn L. Martin Co., Baltimore 3, Md. These new sales engineers have undertaken territorial assignments in the distribution of Marvinol VR-10 and other products of the division. The appointees are: Frank L. Hemingway, to cover the Chicago area east to Ohio; Arthur W. LaCouture, for Ohio and adjacent nearby points; and Dr. C. W. Kleiderer, for the New York City metropolitan area. Mr. Hemingway is a graduate of Northwestern University and was previously employed with the Interchemical Corp., New York. Mr. LaCouture is a graduate of Boston College and was formerly employed with the Archer Rubber Co., Milford, Mass. Dr. Kleiderer graduated from Western Kentucky State University, where he taught for several years, and has served as director of research for the Ideal Novelty and Toy Co., Hollis, N. Y.

Predicts 75,000-Mile Tires

Early development of 75,000-mile tires that will last the average motorist eight years, if he keeps the same car that long, was predicted by Dr. Charles P. Fryling, of the Phillips Petroleum Co., in an address before the annual meeting of the Northeastern Section of the American Chemical Society, held in Cambridge, Mass., on May 12. This three-fold increase in the life span of the automobile tire can be expected to result from further improvements in cold rubber. Dr. Fryling stated that in addition to making possible better rubber, new catalysts now being used also reduced the cost of the synthetic product. Faster reactions with reduced overhead costs are now possible, he said, and less pure raw materials can be employed.

Sohio Cuts Tire Prices 19%

The Standard Oil Co. of Ohio has reduced the price of its passenger car tires by 19% in a move which came as a surprise to the tire industry. Standard has only one line of tires, the Atlas. In the 6.00-16 size, it had been selling for $15.95, the same as first quality lines of other major tire producers. Under the new schedule, this tire lists at $12.92. This is comparable to the second line prices of its competitors. Most tire companies declined to comment on the move, but some expressed the opinion that they did not see how prices could be cut and quality maintained in these times. Standard's tires are made by the U. S. Rubber Co.

King & Lang Changes Name

The Robert J. King Co., Inc., Norwalk, Conn., which for many years was known as King & Lang, Inc., has changed its name back to the Robert J. King Co., Inc. Officers of the company include Robert J. King, president, R. Gardner King, vice-president, and Elizabeth C. King, secretary-treasurer. The company manufactures chemical specialties for the rubber and other industries.

FINANCIAL NEWS

Rome Cable Corporation

Year Ended March 31: Net income of $1,115,960, which is equal to $2.78 a common share, against $1,152,579, or $2.83 a share, for the preceding fiscal year. Net sales increased to a new high of $26,088,-523, compared with $25,202,853 for the previous year. As of March 31, 1949, working capital was $5,637,491, compared with $3,946,520 a year earlier. The report stated that in the last three years the company had spent $3,347,000 on plant and equipment. On March 31, 1949, a total of $105,000 of capital expenditures had been authorized but not completed.

United Carbon Company

First Quarter: Net income of $726,507, which is equal to 91 cents a share, compared with $804,068, or $1.01 a share, for the first three months of 1948. Balance sheet items as of March 31, 1949, reveal current assets of $12,493,455 and current liabilities of $3,643,855, compared with $12,707,218 and $3,575,238, respectively, as of March 31, 1948. The 1949 net income is exclusive of $247,855 net credit adjustment of prior years' taxes and $1,152,301 net profit on the sale of the Mississippi Fuel Corp. credit stock. Both items were credited to the earned surplus account.

Minnesota Mining & Mfg. Co.

First Quarter: Net income of $3,215,250, which is equal to $1.58 each on 1,972,845 common shares, compared with $2,817,049, or $1.39 a common share, for the first quarter of 1948. Net sales for the first three months of 1949 amounted to $26,835,-369, against $24,742,482 for the corresponding period of 1948.

Thermoid Company

First Quarter: Net profit of $279,139, compared with $284,974 in the first three months of 1948. Gross sales for the first quarter of 1949 totaled $5,822,311, against $5,966,474 for the corresponding period of 1948.

Hewitt-Robbins, Inc.

First Quarter: Net income of $219,805, which is equal to 79 cents a share, compared with a net loss of $108,092 for the first quarter of 1948. Figures include totals for company subsidiaries.

Anaconda Wire & Cable Co.

First Quarter: Net profit of $1,381,370, which is equal to $1.63 a share, against $1,883,469, or $2.17 a share, for the corresponding period last year.

New Jersey Zinc Co.

First Quarter: Net profit of $2,760,184, which is equal to $1.41 a share, and which compares with $1,824,908, or 93 cents a share, for the first three months of 1948.

Lee Rubber and Tire Corp.

Six Months to April 30: Net profit of $743,963, which is equal to $2.93 each on 253,584 shares of capital stock, compared with $923,640, or $3.64 a share, for the six months ended April 30, 1948. Net sales for the 1949 period amounted to $15,503,592, against $16,665,913 for the corresponding period of 1948.

Monthly Chemical Market Reports

Foster D. Snell, Inc., 29 West 15th St., New York 11, N. Y., is presenting a new and comprehensive service to producers and users of chemicals with the publication of monthly chemical market reports. Information collected from various publications and other sources is gathered and presented as a group of reproduced typewritten reports. This will be supplied either as to the entire list of 85 major chemicals and most of the unusual ones, or as specific data on any chemicals. The complete reports are prepared monthly and comprise 225 to 250 typewritten pages. Pages referring to a specific chemical are sent at a charge of $2.00 per full page or $24 per year, whichever is less. The entire list is furnished monthly at $1,200 per year. Another form of service is to supply past and present accumulated data on any one or more chemicals, also at $2.00 per page.

German Research Translations

Descriptive abstracts of over 200 translations of German wartime scientific and industrial research reports appear in a catalog recently issued by the Consultants Bureau, 153 West 33 St., New York 1, N. Y. The bulk of the reports abstracted in the catalog were recommended for translation by American Petroleum Institute Technical Oil Mission Film Study Groups. The reports cover a wide range of material, pertinent to such fields as rubber, plastics, industrial chemicals, fuels and lubricants, chemical engineering, etc. Catalog No. 1 is available from the bureau without charge if requested on firm or organization stationery.

Offer Monthly Petroleum Summary

The Technical Information Division of the engineering Experiment Station, Georgia Institute of Technology, Atlanta, Ga., has begun the preparation of a "Monthly Summary of Industrial Developments," related to petroleum. The project is sponsored jointly on a non-profit basis by several companies. The summary is published during the first week of each month and constitutes a semi-technical-economic coverage of development noted in a continuous survey of the literature received by the 25th of the preceding month. The summary is not available to any individual, company or library except on a full participating sponsorship basis.

Form International Division

The Rempel Manufacturing Co., Inc., of Akron, has organized an international division to handle licensing arrangements with foreign companies interested in using the firm's Roto-Cast Process. Dr. Rudolf H. Ulrich, associated with the General Tire & Rubber Co. for the past 14 years, and previously associated with the Firestone organization, has been named to handle the newly-created division. Dr. Ulrich's latest assignment with the General organization was as plant superintendent of the General plant in Portugal. The Roto-Cast Process, developed by D. G. Rempel, employs inexpensive plaster of Paris molds to remove the water from latex in forming rubber toys. The process is protected by patent, and applications have been made for patent protection in 23 other countries. The Rempel concern has already licensed manufacturers in India and New Zealand and is planning to construct plants of its own in Canada and Mexico. Started about two years ago, the firm now employs some 150 and occupies about 40,000 square feet of space.

Russian Literature Translations

Consultants Bureau, 153 West 33d St., New York 1, N. Y., has announced the availability of *The Journal of General Chemistry* of the U. S. S. R. in English translation, on a yearly subscription basis. Initiating a program designed to make English translations of Russian scientific and technical periodicals available to American science and industry, Consultants Bureau has released English translations of 313 articles which comprise the technical contents of Volume 18, 1948. Subscribers to the agency's English translation of the periodical will receive complete translations of all of these articles, a total of over 950,000 words. Each monthly issue will be published separately, with delivery of all 12 issues of 1948 promised by January 1, 1950, and all 12 issues of 1949 by June 1, 1950. The yearly subscription price to the English translation is $95.00. Titles of articles as well as a listing of other Russian periodicals available in translation may be secured from the Bureau.

Goodrich New Zealand Plant

Reid New Zealand Rubber Mills, Ltd., Auckland, New Zealand, newest addition to the foreign plants and associated companies of the B. F. Goodrich Co., is now producing tires and tubes, according to W. C. Gulick, president of International B. F. Goodrich. Mr. Gulick recently returned to this country after a visit to New Zealand, the South Pacific and the Far East. Ward Reid is president of the Australian plant. Goodrich men now in Auckland include Thomas E. Boyle, factory manager, J. M. Tilton, technical and compounding manager, Frank S. Vukan, tire construction manager, and Frank La Rue, construction engineer. International holdings of the Goodrich company now include manufacturing operations in Canada, Cuba, Mexico, Colombia, Sweden, Holland, and France, in addition to New Zealand.

NEW RUBBER GOODS

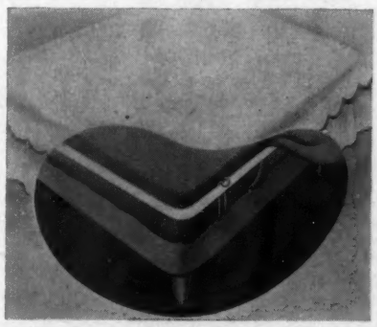
Vertical Snubbing Mountings

The Lord Manufacturing Co., Erie, Penna., has developed a new line of holder type Vertical Snubbing Mountings designed to isolate vibration and control severe shock. The load capacity of the mountings ranges from 120 to 310 pounds per mount. It is claimed that Lord Industrial

V. S. Mountings make it easier to hold tolerances both in the mounted machines and in surrounding equipment. Frequencies from 700 c.p.m. upward are said to be sufficiently isolated at their source. Snubbing shoulders are inactive during normal vibration, but snub against steel washers when impact occurs, thereby cushioning shock. Three series of mountings are available. Series 279 has a deflection limit of one-eighth inch under load; Series 281, three-sixteenths of an inch; Series 282, one-quarter of an inch. Flexing elements are made of neoprene.

Snap On Bed Belt

A simple, dependable method of keeping bed covers snugly in place is now possible with the use of the Snap On Bed Belt, a product of the Snap On Bed Accessories Co., 3037 West 7th St., Los Angeles 5, Calif. Made of scented neo-



prene, the belt prevents sheets or blankets from sliding or creeping and eliminates drafts at the foot of the bed. Made in two easy-to-use sections, the belt fits all beds and adds usable inches to sheets and blankets. Special belt holders are provided which enable the sections to be snapped together quickly and easily. The accompanying illustration indicates the application of the belt.

Mortimer Snerd Rubber Puppet

An animated hand puppet reproduction of Mortimer Snerd, the dummy character immortalized by Edgar Bergen, has been developed and introduced by the Hollywood Magic Manufacturing Co., 6268 Hollywood Boulevard, Hollywood, Calif. Featuring a cloth body and a head made of soft rubber the puppet is retailing at novelty, drug and department stores at $2.95. The rubber features of the puppet adapt themselves to an endless variety of laughable expressions and grimaces. These are controlled by inserting the index finger in the head of the puppet and the third finger and thumb in the sleeves. A ventriloquial booklet is supplied with the puppet.

Dritz Hold-It Tape

John Dritz and Sons, 79 Madison Avenue, N. Y., is presently marketing a sew-on strip of neoprene sponge rubber designed to prevent skirts from twisting and blouses

from pulling out. Named "Hold-It Tape," the product will not lose its effectiveness after dry cleaning or after steam pressing and home ironing. Besides its use on garments, the neoprene tape offers a means of preventing scatter rugs from skidding, the manufacturer states.

Corrugated Rubber Matting

Corrugated rubber matting with a backing of sponge rubber was recently introduced in 30-foot rolls by the B. F. Goodrich Co., Akron, Ohio. The matting is 36 inches wide, ¼ inch thick, with the corrugated rubber matting ⅛ inch thick and the sponge rubber backing the same thickness. The combination of sponge rubber with a rubber surface is said not only to reduce fatigue, but to insure longer wear, better traction and easier cleaning. The matting finds use in factories, department stores, hospitals, etc.

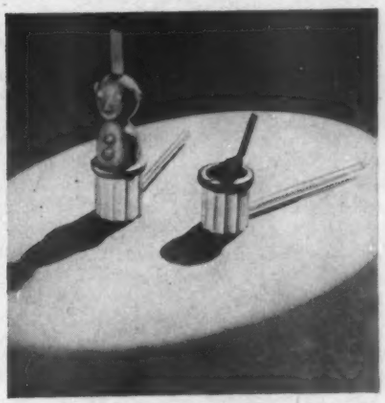
Miltron "Sudzer" Soap Saver

The Miltron Corp., Greenback, Tenn., has introduced the "Sudzer" soap saver, a neoprene-coated mesh bag which holds soap scraps so that they may be used to the last. The base material of the prod-

uct is cotton mesh that is coated with neoprene latex. Sewn edges are redipped for added strength. The bag is suited for a full bar as well as soap scraps, and may be used in bath or kitchen sink. The manufacturer claims that the flapped mesh bag is soft enough to bathe the baby, and can be thrown in the washing machine, or used to scrub pots and pans without marring the finish. The Sudzer comes in a variety of colors.

Razzer Pop-Up Pipe

Oak Rubber Co., Ravenna, Ohio, has introduced a novelty pipe which should appeal to the younger element. The bowl of this plastic bubble pipe contains a rubber clown figure which pops



out when the child blows into the pipe. Drawing in on the stem causes the clown to hide within the bowl. Blowing through the stem also produces a razzing noise, which makes the novelty usable at adult parties where a noise maker is desired.

A 15-page technical bulletin describing the properties and uses of resorcinol has been made available by the Chemical Division of Koppers Co., Inc. The bulletin includes specifications for both technical and U.S.P. grades, as well as information on handling and storage.

A.S.T.M. D-11 SUBCOMMITTEES RENDER REPORTS ON MEETINGS

As reported in our March issue, the highlite of the Spring Meeting of the American Society for Testing Materials, held in Chicago from February 28 to March 4 was a Symposium on the Aging of Rubber, sponsored by Committee D-11 on Rubber and Rubber-like Materials. The committee itself held one of its best meetings in recent years during the week, which was also A.S.T.M. Committee Week. In addition to the main committee, 18 subcommittees and the Joint S.A.E.-A.S.T.M. Technical Committee on Automotive Rubber held meetings.

Committee D-11 has been cooperating with the Federal Specifications Board in a review of an extensive revision of the Federal Specification for Rubber Goods—General Specifications, Methods of Physical Tests and Chemical Analyses (ZZ-R-601). The various test procedures to be included in the revised federal specification have been under study and suggestions were heard from various members at the Chicago meeting.

Report on London Meeting

A report on the meeting in London, England, on June 28 and 29, 1948, of Technical Committee 45 on Rubber of the International Organization for Standardization was presented by the A.S.T.M. representative, H. G. Bimmerman (Du Pont). It was reported that ISO Committee 45 will hold its next meeting in Holland about the middle of 1949, and Committee D-11 took action to extend an invitation to the ISO committee to hold its 1950 meeting in the United States. It was proposed that if this invitation should be accepted, that arrangements would be made to hold the meeting in connection with the 1950 A.S.T.M. Annual Meeting scheduled for Atlantic City, N. J.

A report was presented by the Special Committee on Standard Reference Samples. As a result of round-robin tests in five cooperating laboratories on some 15 compound formulas, it was found possible to reduce the number of compounds to 13. It was also announced that the National Bureau of Standards now has for sale the following 7 compounding ingredients: zinc oxide, sulfur, stearic acid, benzothiazyl disulfide, tetramethylthiuram disulfide, channel black, and light magnesia.

Action was taken by Committee D-11 to request that Committee E-1 on Methods of Testing establish a subcommittee to consider the subject of low-temperature testing of elastomeric materials. This group would include representatives from various A.S.T.M. technical committees interested in these tests and also members from industry and Government agencies.

Joint Committee Active

The S.A.E.-A.S.T.M. Technical Committee on Automotive Rubber has been very active and its meeting was one of four held during the past year. It has under way an extensive program on vibration insulators to determine the following characteristics of rubber as applied to automotive engine mounts: (a) resilience or efficiency, (b) dynamic modulus or spring rate, and (c) static modulus or load-carrying properties.

Specifications have been completed for automotive mats and for windshield wiper tubing and for rubber automotive heater hose. New specifications are in preparation for hydraulic window lift hose. One very important project being developed is the standardization of vendor identification for rubber products. The proposed key for source identification letters for manufacturers of molded products and for manufacturers of extruded products are now the subject of letter ballot in the joint technical committee. Similar codes for identification of die-cut products and special products are now under development.

A set of methods for testing V-belts is in preparation and general specifications for gaskets for automotive uses will be completed in time for the June meeting. New specifications for hydraulic brake cups for heavy-duty service have been completed.

It was announced that a new Subcommittee on Statistical Quality Control as applicable to the rubber industry would be appointed in the near future. The committee also decided to appoint an editorial subcommittee to keep up to date a bibliography on rubber and also to review the various methods as completed by the committee.

The Subcommittee on Hose recommended the immediate revision of the Standard Specifications for Cotton Rubber-Lined Fire Hose for Public and Private Fire Department Use (D 296-38). These specifications are also the American Standard L 3.1-1941 approved by the American Standards Association. The revisions will bring the specifications into agreement with the current standard of the Underwriters' Laboratories.

Revisions were also reported in the Tentative Methods of Testing Rubber Hose (D-380-46T). The changes will permit the use of a steel caliper graduated in 1/64 in. for measuring the outside diameter of hose 1 in. or less in diameter. The maximum limit of 3 ft. will be added to the length of the test specimen used in the burst test. The immersion test for swell and deterioration of hose will also be broadened to cover the use of immersion fuels 1 and 2 and the test procedure now specified in Method D 471.

The Subcommittee on Thread Rubber reported completion of round-robin tests on extruded and cut rubber thread to check the reproducibility of various industry methods. As the result of the data obtained in these studies, it was agreed to write up methods covering tests for size, yards per pound, modulus and permanent set, and tension and recovery.

Data on Wire and Cable

The Subcommittee on Insulated Wire and Cable submitted an important revision in the Tentative Methods of Testing Rubber Insulated Wire and Cable (D 470-48T) to include three new methods for determining water absorption. These alternate methods are based on those of the Insulated Power Cable Engineers Association. A revision of the Tentative Specifications for Rubber Sheath Compound for Electrical Insulated Cords and Cables (D 532-46T) will remove the tear test and place it in the general Methods D 470.

The two specifications for GR-M polychloroprene sheath compound for electrical cords and cables are being revised to include the use of No. 2 oil. Another revision of Method D 470 is the inclusion of an electrometric method for ozone concentration as an alternate to the present chemical test specified. This subcommittee is investigating specifications for polyethylene and silicone rubbers. Specifications for thermoplastic vinyl polymer sheaths for electrical insulated cords and cables are to be published as tentative in June.

At the meeting of the Subcommittee on Packing, a paper on creep and relaxation of compressed asbestos gaskets was read by F. C. Thorn. This subcommittee reports that corrosion studies of compressed asbestos sheet showed practically no corrosion, and it was decided to undertake a more severe test. The subcommittee has under study the use for general applications of the specifications for compressed asbestos gaskets prepared by the Joint S.A.E.-A.S.T.M. Committee. The Navy seal aging test, used by the Navy for sealing portholes and similar applications, is being studied.

The Subcommittee on Rubber Latices presented for publication, as information, proposed Specifications and Methods of Test for Concentrated, Ammonia Preserved, Creamed and Centrifuged Natural Rubber Latex. These specifications cover requirements for first-grade concentrated natural rubber latex of the following types:

Type I—Centrifuged natural latex preserved with ammonia only or by formaldehyde followed by ammonia.

Type II—Creamed natural latex preserved with ammonia only or by formaldehyde followed by ammonia.

Included are detailed provisions for sampling and testing both types of latex.

These proposals are quite timely in view of the large number of new producers, particularly natives in the Far East who have entered into the production of rubber latex since the end of the war. The proposed specifications will be published in the form of proposed recommendations and will be submitted through the Rubber Manufacturers' Association to other interested organizations in this country and throughout the world.

Tension Test Revised

The Subcommittee on Physical Tests reported completion of an extensive revision of the Tentative Methods of Tension Testing of Vulcanized Rubber (D 412-41). It also has under way a revision of the Standard Methods of Sample Preparation for Physical Testing of Rubber Products (D 15-41). A study of the coefficient of friction test is to be undertaken.

The Subcommittee on Chemical Analysis reported plans for revision of the Tentative Methods of Chemical Analysis of Rubber Products (D 297-43T) to bring

them into substantial agreement with the revised Federal specification. It also reported that plans have been made for improvements in methods of analysis for sulfur, carbon black, synthetic rubber, and a solvent method for rubber hydrocarbon determination.

The Subcommittee on Abrasion recommended that the Graves test specimen designated as Die C in the revised Method D 624-48 be used in preference to Die A or B wherever possible. It was reported that the Schiefer abrasion method appears to have promise for testing processed fabrics. The Joint S.A.E.-A.S.T.M. Committee has under way a study of the difference in temperature of tires operating under different ambient conditions in order to determine the effect of temperature on abrasion.

The Subcommittee on Life Tests reported plans for undertaking a program in cooperation with Committee D-20 for evaluating the aging of plastics. Work is under way in 16 cooperating laboratories on ozone aging. Revisions for immediate adoption were presented in the Air Pressure Heat Test (D 454), the Oxygen Pressure Method (D 572), and the Test Tube Method (D 865) as regards the heating media and methods for measuring the temperature thereof.

The Section on Hardness and Creep Test presented revisions in Method D 676 covering the calibration of durometers. This applies to both the Shore and Rex durometers. A test for low-temperature set is expected to be completed by the June meeting.

The Subcommittee on Flexing Tests presented for publication as tentative a new method of test for resistance of vulcanized rubber or synthetic elastomers to cut growth by the use of the Ross Flexing Machine. This method is intended for use in determining the resistance of vulcanized compounds of crude rubber or synthetic elastomers (or blends thereof) to cut growth when subjected to repeated bend flexing.

The Standard Methods of Dynamic Testing for Ply Separation and Cracking of Rubber Products (D430-40) are to be revised. This standard now covers three separate procedures using the Scott, de Mattia, and the DuPont Flexing Machines. The revision will separate these into three individual methods with appropriate cross references. A special committee was appointed to undertake a revision of Method A using the Goodrich Flexometer in Tentative Method D 623.

Additional Subcommittee Reports

Arrangements have been made by the Subcommittee on Immersion Tests for a supply of Reference Oil No. 2 meeting the requirements prescribed in Method D 471. The alternate gasoline type test liquids being recommended by the Government are to be studied by this subcommittee.

The Subcommittee on Liquid Rubber Products is considering developing test methods for a relatively new type of synthetic rubber-resin adhesive.

The Subcommittee on Cellular Rubbers presented as tentative, new specifications and methods of testing latex foam rubbers and separate specifications and test methods for sponge and extruded cellular rubber products. These two new tentatives will be a revision and consolidation of the present Tentative Specifications D 798 and Methods D 552. The revision includes both specifications and test methods for the particular type of cellular rubber.

Plans were reported for revision of the Methods of Testing Hard Rubber Products (D 530-48T). Compounds to be used in cooperative round-robin tests have been agreed upon. A special meeting is to be held at an early date to complete plans for this work. The Tentative Methods of Testing Asphalt Composition Battery Containers (D 639-46T) are also under revision. Need was expressed for an impact strength test for these materials; also a revision of the bulge test is to be undertaken.

The abrasion testing program on coated fabrics includes studies of the Schiefer abrasion machine. Round-robin tests are also under way on the edgewear testing machine of the American Seating Co. The Stoll abrader and the Taber abraser are also being studied.

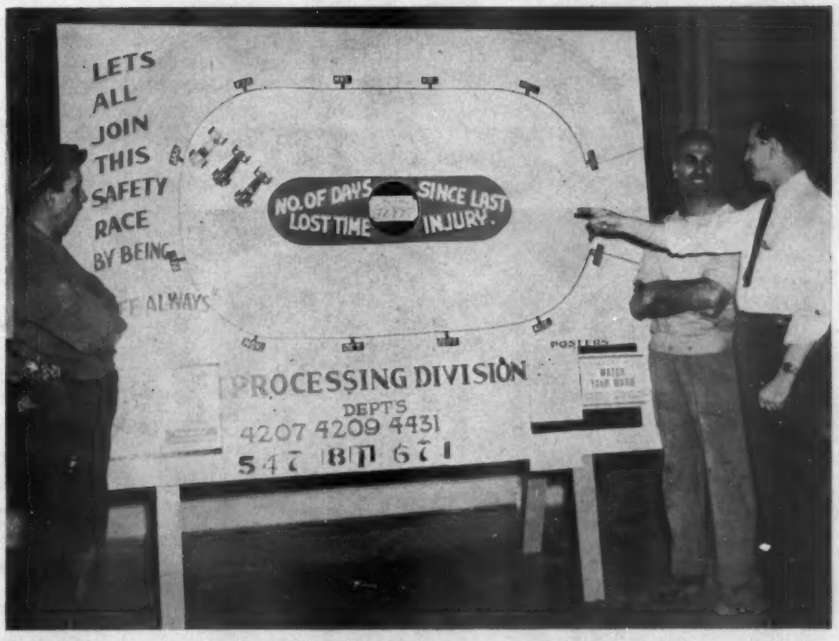
The Subcommittee on Low-Temperature Tests recommended the withdrawal of the Tentative Method of Test for Low-Temperature Brittleness of Rubber and Rubber-Like Materials (D736-46T). With the discontinuation of this method, the committee recommended use of the Tentative Method of Test for Brittle Temperature of Plastics and Elastomers (D 746-44T). It also recommended as tentative the Method of Measuring Low-Temperature Stiffening of Rubber and Rubber-Like Materials by the Gehman Torsional Apparatus which was published as information last year.

The Subcommittee on Resilience Test recommended for publication as tentative the Method of Test for Impact Resilience and Penetration of Rubber by the Rebound Pendulum recently published as information. The future work of this subcommittee will deal with forced vibration test.

Rubber Floor Maintenance

The Flooring Division of the Rubber Manufacturers Association, Inc., has published Approved List No. 11, containing the brand names and addresses of manufacturers of cleaners and polishes which have been tested by the Association and approved for use on rubber flooring installations. This new list will be effective until February 28, 1951. In addition to listing approved cleaners and polishes, the pamphlet contains the Association's approved maintenance methods for rubber floors and suggestions for the proper use of casters and glides on rubber flooring. Single copies are available without charge from the Rubber Manufacturers Association, Inc., 444 Madison Avenue, New York 22, N. Y.

GOODRICH FOREMEN'S CLUB SPONSORING SAFETY CONTEST IN AKRON



Unique displays record day-to-day progress in a safety contest being held in Plant 4 of the B. F. Goodrich Co. at Akron, Ohio. Pictured above is a replica of a midget auto race which is used as a safety campaign aid in different plant departments. The cars advance on the track only if the departments are accident-free The board also pictures the number of days each department has gone without a lost-time accident. Under the sponsorship of the Foremen's Club, foremen of the winning departments will get a free meal, paid for by the losers. Different scoreboards are on view so that employees may be informed as to the daily scores.

LOS ANGELES NEWS

Approximately 205 members and guests, including 24 Caltech students and 17 Goodrich men, attended the May meeting of the Los Angeles Rubber Group, held on May 3 at the Hotel Mayfair in Los Angeles. The meeting was sponsored by the B. F. Goodrich Co., with L. R. Keltner, manager of the local plant, as master of ceremonies. Other Goodrich men sharing the spotlight included Guy Gundaker, Jr., F. E. Titus, L. L. Horchitz, C. H. Kanavel, R. A. Lees, and J. E. Miller.

The principal speaker at the regular meeting was Randolph Van Nostrand, well-known public relations counselor and director of public relations for the Merchants and Manufacturers Association. Speaking on "This Is Your Problem," Mr. Van Nostrand stressed the pressing need of returning to the basic principles of Americanism, placing emphasis on the obligation of management to instruct their workers on these principles and their advantages.

Prior to the regular dinner meeting, Dr. Walter A. Dew, western district manager of the DuPont Extension Division, addressed the technical group meeting on a "Preview of Progress." Introduced by R. A. Lees (American Anode), Dr. Dew demonstrated many of the newest developments in modern industrial chemistry and indicated how these developments have helped give the people of this country the highest standard of living in the world. Neoprene and polythene were among the specific developments cited.

Charles Terry has organized a new rubber company which is expected to get into operation shortly. Called the Interstate Rubber Products Co., it is located at 1638 West Jefferson Boulevard in Los Angeles.

Brown Rubber Co. has moved from 1144 Crocker Street and is now located at 733 Stanford Avenue in Los Angeles.

Dave Adams has left the Gross Manufacturing Co. and is now associated with the Stoner Rubber Co. in Anaheim.

Grover S. Ramsey, associated with the Goodyear Rubber Co. in San Francisco for the past several years, has left that organization and is now associated with the Grove Regulator Co. in Oakland, Calif.

Among the Angelenos attending the recent meeting of the ACS Rubber Division in Boston were Ray Bitter (Goodrich Chemical), Deke Maddy (Harwick Standard Chemical), Bill Snyder (Vanderbilt), and Bob Abbott (Consultant).

Bob Coleman, formerly with the W. J. Voit Rubber Corp., has joined the recently-organized National Sponge Cushion Co.

Tom Squires, formerly with the Pioneer Rubber Mills, recently joined the Naugatuck Chemical Division of U. S. Rubber Co. in Los Angeles.

Ralph Fitzgerald, associated with the W. J. Voit Rubber Corp. for many years as purchasing agent, left that organization as of June 1. His future plans have not yet been revealed.

Ted Tafe, formerly with Reeves Rubber, Inc., has joined the staff of the Lamb Rubber Corporation.

Recent visitors to the Los Angeles area have included Jim Hand and Bob Hartman (Monsanto Chemical), Garvin A. Drew (Schrader) and Owen J. Brown, Jr. (Cabot).

General plans have been consummated for the annual summer outing of the Los Angeles Rubber Group at Catalina Island on Saturday and Sunday, July 23 and 24. Excellent accommodations are reported to have been secured at Catalina Inn. Due to waning interest and poor catches in recent years, the committee has decided to eliminate the fishing expedition usually held in connection with the outing. A real fishing outing may possibly be arranged for the group later in the summer.

Pictured above in the usual order are L. R. Keltner, L. T. Greiner, F. E. Titus and G. Gundaker, all of the B. F. Goodrich Co., at the May 3rd meeting of the Los Angeles Rubber Group.

Buckmaster Ousted By URW

L. S. Buckmaster, president of the United Rubber Workers, CIO, since 1945, was removed from office on May 24 by the union's general executive board after a month of closed hearings in Philadelphia, Penna. Mr. Buckmaster also lost his post on the fourteen-man executive board, which acted as a trial board during consideration of charges made by Robert E. Garber, president of Local 336 in Pottstown, Penna. The board found Mr. Buckmaster guilty of "malfeasance in office" because he "conspired" to deprive local union officers of their rights, issued public statements "falsely attacking" the character of local union officers, and was responsible for the Pottstown "riot," when differences between Mr. Garber and Mr. Buckmaster resulted in a free-for-all fight. In accordance with the union's constitution, H. R. Lloyd of Akron, Ohio, was elevated from vice-president to president. He will serve until new officers are elected at the Toronto, Canada, convention in September. Mr. Buckmaster stated that he would appeal his ouster at the September meeting.

Protona Files Anti-Trust Suit

Protona Corp., Basle, Switzerland, manufacturers of high-tension fluid-filled cable, recently filed a $1,250,000 suit in Federal Court, San Francisco, Calif., charging illegal patent pooling and cartel agreements against the General Electric Co. and the General Cable Corp. Attorneys for the Swiss firm said the Sherman Anti-Trust Law would be invoked. Named as co-conspirators, but not defendants, were the Okonite-Callender Cable Co., Phelps-Dodge Copper Products Corp., Societa Italian Pirelli of Italy and Compagnie Internationale Pirelli of Belgium.

Petition in Bankruptcy Filed

An involuntary petition in bankruptcy was filed on May 24 by the National Steel & Copper Plate Co. against the Broderick Rubber Products Co., Inc., of Harvey, Ill., according to the National Credit Office, New York. Previously, National Steel had secured a judgment against the company by confession on lease for $1,657.

CANADIAN NEWS

At the annual meeting of the Rubber Association of Canada, held in Toronto on May 18, the following were elected to the board of directors: J. R. Belton (Gutta Percha & Rubber), M. L. Brown (Seiberling Rubber), W. H. Funston (Firestone), John Miner (Miner Rubber), J. D. Morgan (Viceroy Manufacturing), A. G. Partridge (Goodyear), G. W. Sawin (Goodrich), J. I. Simpson (Dunlop Tire), and C. C. Thackray (Dominion Rubber).

At a subsequent meeting of the directors, the following officers were appointed for the 1949-50 period: *President,* C. C. Thackray (president, Dominion Rubber Co.); *Vice-President,* M. L. Brown (president, Seiberling Rubber Co., Ltd.); *Treasurer,* R. C. Berkinshaw (vice-president, Goodyear Tire & Rubber Co.). Grieg B. Smith was re-elected manager, secretary and assistant treasurer.

In a review of the prospects for the rubber industry in 1949, the incoming president, Mr. Thackray, pointed out that the sellers' market of the past ten years has come to an end and a mild downward trend in sales will probably prevail. Export business will certainly fall, but the industry's high post-war volume has been based primarily on a high level of domestic business and he is convinced that rubber products are so essential to Canadian consumers and industry in general that they will remain in good demand as long as the general level of prosperity and industrial activity in Canada remains high. He advised the industry to face the future calmly confident that it will surmount the selling problem of the coming years as successfully as it had surmounted the production problems of the past decade.

In a report on developments in the industry during 1948, the manager and secretary, Mr. Smith, stated that world consumption of all types of rubber was now about double the pre-war tonnage and it may be assumed that it will remain well above pre-war levels. In spite of civil wars and disorders in the Far East, natural rubber production in 1948 was 50% higher than in a normal pre-war year, and in view of the fact that chemical rubbers have clearly won a substantial and permanent place in the industry, is at least equal to the effective demand. The existence of the chemical rubber plants has had a marked stabilizing effect on natural rubber prices.

An Industrial Defence Preparedness Committee on Rubber has been set up under the chairmanship of Mr. Simpson and is actively drawing up plans to enable the industry to produce military supplies quickly in case of need. In view of the fact that chemical rubbers supplement but cannot replace natural rubber in many essential products, it has strongly recommended that the Government acquire a national stockpile of 40,000 long tons of natural rubber as insurance against a repetition of the situation faced when the Japs over-ran the Far East in the last war. This recommendation was forwarded to the Minister of National Defence in October, 1948, with the full endorsement of the Canadian Industrial Preparedness Association and the Industrial Defence Board.

Views on the value of butyl rubber inner tubes for use in the Dominion of Canada are wide and varied. A spokesman for Canadian Goodrich indicated that whereas two years ago butyl tubes broke down severely when used at temperatures around zero, no trouble was reported during the past winter when an improved butyl composition was utilized. According to the Goodrich spokesman, the industry has been discussing a complete return to butyl.

An official of Canadian Firestone said that a new formula the company has been using has proved quite satisfactory and its butyl tubes do quite well in temperatures as low as 40 below bero. These Firestone tubes were in use in Edmonton and Calgary during the past winter in temperatures of —54° F. with no trouble reported.

The wide difference in conditions in the United States and Canada was emphasized by an executive of Canadian Goodyear who explained that Canadian manufacturers reverted to natural rubber when butyl developed cold weather trouble whereas manufacturers in the States stayed with butyl rubber to a large extent. This executive felt that results on butyl tubes were still incomplete and that time would furnish the answer.

An official of Dominion Rubber stated that the company's butyl tubes during the past winter had given little trouble and the company was well satisfied with results. However, he explained, Dominion Rubber has returned to the use of natural rubber for most of its tubes because the public appears to have an aversion to synthetics.

James Simpson, president of the Dunlop Tire & Rubber Goods Co., was emphatic that butyl tubes are not suited to the Canadian climate. Pointing out that comparatively little of the United States is subject to the far-below zero temperatures experienced in Canada, he expressed doubt that butyl tubes will work in Canada.

Canadians used 14,554,000 pounds of rubber in March, compared with 13,725,000 the previous month, the Bureau of Statistics has reported. Of this total, natural rubber consumption rose to 8,109,000 pounds from 7,608,000 in February; reclaim to 2,529,000 from 2,319,000, and synthetic to 3,916,000 from 3,798,000.

Consumption of rubber in the production of tires and tubes increased by 442,000 pounds, while rubber footwear took up an extra 37,000 pounds. Other products took up an increased 351,000 pounds.

Production of synthetic rubber in March rose to 9,289,000 pounds from 8,949,000 in February and production of reclaim advanced to 670,000 pounds from 605,000.

Stocks of natural rubber at the end of the month totaled 15,572,000 pounds, compared with 17,277,000 a month before. Synthetic stocks were 8,989,000 pounds against 10,107,000 and reclaim 3,805,000 against 4,146,000.

N. J. McCracken, formerly chief chemical engineer and more recently factory manager of Canadian Synthetic Rubber, Ltd., at Sarnia, Ontario, has been named manager of the company to succeed C. H. Madsen who recently left to take over the operation of the U. S. Government-owned synthetic rubber plant operated by the U. S. Rubber Co. at Borger, Texas.

Charles H. Fletcher, until recently associated with the laboratory of the Merchants Footwear Plant of the Dominion Rubber Co. at Kitchener, has been transferred to the footwear development laboratory of the company in Montreal. While at Kitchener, Mr. Fletcher was primarily engaged in statistical quality control work.

Several recent appointments have been announced by the Goodyear Tire & Rubber Co. of Canada, Ltd. F. G. Willmot, associated with the company for the past twenty years, has been named assistant general sales manager; G. F. Turner, also with the company for some twenty years, has been appointed manager of tire sales, and C. M. Roberts, formerly head office staff representative, has been appointed manager of the automobile tire department.

Harry L. Kenyon

Harry L. Kenyon, vice-president of the Vulcan Proofing Co., Brooklyn, N. Y., died at his home in Huntington, Long Island, N. Y., on May 6. He was 78 years old. Mr. Kenyon was a member of the Brooklyn Chamber of Commerce and chairman of its Brooklyn-Battery Tunnel Committee. For many years he was active in endeavors to arouse public interest in the tunnel project. He was formerly vice-president of the C. Kenyon Co., one of the first companies in the New York area to manufacture clothing specialties and raincoats. Mr. Kenyon was a member of the Mayflower Society and the Crescent Club of Brooklyn and Huntington. Funeral services were held on May 9 at the chapel of Greenwood Cemetery in Brooklyn.

Burgess Offers New Pigments

The Burgess Pigment Co., 64 Hamilton St., Paterson 1, N. J., are currently producing two new pigments under U. S. Patent No. 2,307,239. Iceberg Pigment is a white anhydrous pigment with 90-92 brightness which is used as a white pigment by the rubber, plastic, paint, ink and other industries, as well as a coating and filler pigment by the paper and boxboard industries. Burgess Pigment No. 30 is used in synthetic rubber and vinyl compounds. The company has mines and plant at Sandersville, Georgia.

OBITUARIES

John W. Whitehead

John W. Whitehead, president of the Norwalk Tire & Rubber Co., Norwalk, Conn., died on May 27 in the Norwalk Hospital after an illness of several months. He was 64 years old. Mr. Whitehead was born in Albany, West Australia, on July 6, 1884, and in his early youth made a world trip which developed his interest in rubber and its uses. He went to California where he became associated with the Diamond Rubber Co., and a few years later became assistant Pacific manager of the company, a position he retained until 1914. With several men previously associated with the Diamond company, Mr. Whitehead organized the Norwalk Tire & Rubber Co. in 1914, and became the firm's only salesman in the United States. Later, he was promoted to assistant sales manager and then sales manager. He became president and chairman of the board in 1928. Under his direction, the company expanded its operations and completed a $1,500,000 building program a few years ago. A United States District Court recently approved the company's petition for reorganization after a group of minority stockholders had been defeated in an attempt to gain control. Mr. Whitehead was a member of the New York Athletic Club, Longshore Beach and Country Club in Westport, Long Island, and the Shore and Country Club of Norwalk. He was a Mason. Mr. Whitehead was also a member of the board of directors of the Norwalk General Hospital and a director of the Norwalk Savings Society. His wife survives.

William F. Bass

William F. Bass, a former vice-president of the General Rubber Co., a subsidiary of the U. S. Rubber Co., died at his home in Westfield, N. J., on May 27 at the age of 88. Mr. Bass, who retired several years ago, had been in charge of the purchase of crude rubber for the company. Born in Charlotte County, Va., Mr. Bass was a member of the Crescent A. C. of Brooklyn, New York, and for many years was manager of its lacrosse team. He was a former member of the Princeton Club, the North Fork Country Club of Long Island, the Echo Lake Country Club and the Shackamaxon Golf Club. He leaves his wife, a son, and a daughter.

Frederick P. Woll

Frederick Peter Woll, founder and president of F. P. Woll & Co., Frankford, Philadelphia 24, Penna., died on May 6 in Philadelphia. He was 70 years old. Mr. Woll founded the concern which bears his name in 1907. He was a director of the Frankford Trust Co., a member of the Union League of Philadelphia, the Seaview Golf Club and Whitemarsh Valley Country Club. His wife and two daughters survive.

Christopher Roberts

Christopher Roberts, vice-president of the Weldon Roberts Rubber Co., Newark, N. J., died of a heart attack on May 27 at his home in Vevey, Switzerland, where he had been living since 1947. He was 52 years old. Born in Newark, he attended the Moses Brown School in Providence, R. I., received a B.S. degree from Haverford College and later a Ph.D. from Harvard University. He was a former Associate Professor of Economics at Duke University and lecturer on economics at Harvard. During the first World War he served as a member of the American Friends Relief Unit in France, and as a captain in the American Red Cross in charge of activities in the debarkation camps in France. During the recent war he served in the United States Department of Commerce in its lend-lease division for the Middle East, and in the Bureau of Statistics. In 1946-47 he was economic adviser to the American Military Government in Berlin. His brother, Garrett, survives.

Albert W. Todd

Albert W. Todd, president of the United Shoe Machinery Corp., Boston, Mass., died in his office on May 26 of a heart attack. He was 65 years old. Born in Boston, Mr. Todd entered the firm at the age of 17 when it was the United Shoe Machinery Co. He advanced steadily, becoming president in 1939. Mr. Todd had been made general manager in 1927, a director three years later, vice-president in 1934, and a member of the executive committee in 1937. He had served as an executive officer of foreign affiliates, and spent a portion of each year in branch offices. He also was president of the Campbell Bosworth Machinery Co., W. W. Cross & Co., and the Littleway Process Co. Mr. Todd was a director of the British United Shoe Co., S. A. Felton & Son Co., the Kruppendorf Calculator Co., the Security Eyelet Co., the Turner Tanning Machinery Co., the United Last Co., and the Davis Paper Co. His wife survives.

Edward F. Scheffler

Edward F. Scheffler, supervisor of engineering at the Richmond, Ind., plant of the Belden Manufacturing Co., Chicago, Ill., died on April 3 at Reid Memorial Hospital in Richmond. Born on July 11, 1904 in Chicago, Ill., Mr. Scheffler attended the public schools of that city. He received a B.S. degree from the University of Michigan and his M.A. from Akron University. Prior to joining Belden in 1934, Mr. Scheffler had been associated with the Firestone Tire & Rubber Co. For the past two years he served as chairman of the congregation at Reid Memorial United Presbyterian Church in Richmond. Mr. Scheffler was a member of the American Chemical Society. His wife and two sons survive.

Arthur Evan Boss

Dr. Arthur Evan Boss, manager of pigment sales of the Columbia Chemical Division, Pittsburgh Plate Glass Co., died of a heart attack on May 18 while working in the research laboratory at Barberton, Ohio. Born in Great Village, Nova Scotia, Dr. Boss was a nationally known authority in the rubber pigment field.

After receiving his Ph.D. degree in chemistry at the University of Illinois, Dr. Boss was a research instructor in chemistry at Oberlin College, Oberlin, Ohio. He then served as research chemist at the B. F. Goodrich Co., Akron, Ohio. In 1932 Dr. Boss was named to the staff of the Columbia Chemical Division at its Barberton, Ohio, research laboratory. In 1941 he was named manager of pigment sales with offices in New York City and in 1942 moved to company headquarters in Pittsburgh, Penna. A pioneer in the development and use of specialized pigments for modern rubber production, Dr. Boss served during the war on the Research and Development Board of the War Department. Dr. Boss had also served as chairman of the Akron Section of the American Chemical Society. Services were held on May 21 in Pittsburgh. His wife and son survive.

Sir Wyndham Dunstan

Sir Wyndham Dunstan, director of the Imperial Institute of London, England, for many years, died on April 20 in Farnham Common, Buckinghamshire. He was 87 years old. Sir Wyndham was recognized as one of the outstanding chemists and scientific organizers of his time, notably in making the Imperial Institute the chief center of scientific and technical information on economic resources. Under his guidance the institute carried out investigations that have led to the development of cotton cultivation in countries of the Commonwealth and to the expansion of overseas industries concerned with rubber.

THE STORY BEHIND THE WORD...

JEEP...

In the early days of World War II, the Government ordered what it termed a "General Purpose Car." This car was referred to, as are most Government things, by its initials, "G.P.C." or just the first two, "G.P." The sound of these initials "jeepie" was shortened to "jeep." And thus we get the name for this famous wartime vehicle.

The word Muehlstein—First Name in Scrap Rubber—has long meant strength, stability and progressive leadership.

H. MUEHLSTEIN & CO. INC.

122 EAST 42nd STREET, NEW YORK 17, N. Y.

BRANCH OFFICES: Akron • Chicago • Boston • Los Angeles • Memphis

WAREHOUSES: Jersey City • Akron • Boston • Los Angeles • Memphis

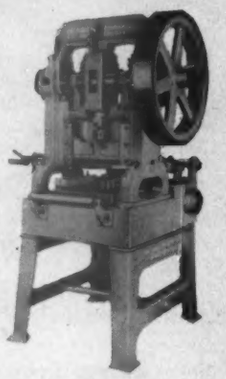
CRUDE RUBBER · SYNTHETIC RUBBER · SCRAP RUBBER · HARD RUBBER DUST · PLASTIC SCRAP

only COULTER can offer you all 4 RUBBER CUTTING MACHINES

1. MODEL A 1—cutting Heels at high speed production or short runs.

2. Model A 2—cutting Multiple Heels, Half and Full Soles with stock grain.

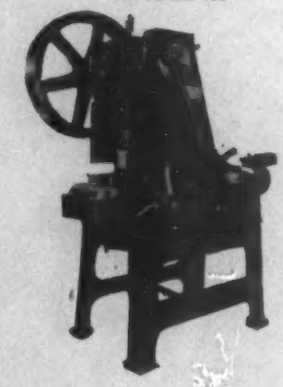
3. Model A 3—cutting Multiple Heels and Taps with or across stock grain.



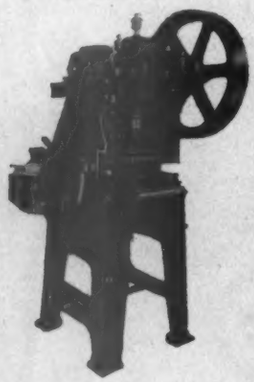
MODEL A2

4. MODEL A2s (Not illustrated) —cutting cross grain of stock.

MODEL A1



MODEL A3



MORE and MORE "UNIFORM QUALITY"

Years of comparisons for wear and service have proven COULTER offers more in higher quality cuttings . . . more in greater production. There is a COULTER MACHINE for cutting volumetric control and stripping of heels, soles, taps and other molded products. Specify a Coulter "Uniform Quality" Machine.

PRODUCTION MACHINES SINCE 1896

The James COULTER Machine Co.

BRIDGEPORT • CONNECTICUT • U. S. A.

NEW EQUIPMENT

Schlegel Air-Welder for Tires

Repairing injuries to off-the-road tires has been simplified by a new process developed by R. E. Schlegel, Inc., 114 E. Exchange St., Akron, Ohio. By means of this process, injuries not extending too deeply into the tire may be repaired without removing the tire from the vehicle. This is accomplished with a light, portable

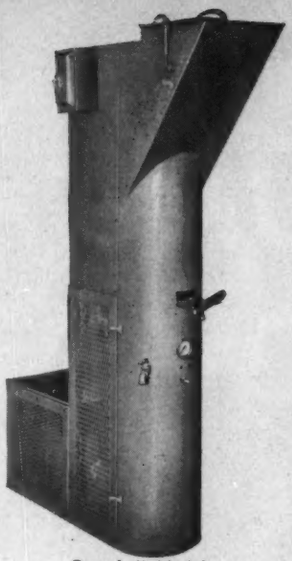
hot air blower or vulcanizer which is electrically operated, that vulcanizes a special rubber into the injury without physical pressure.

The equipment is known as the Schlegel Air-Welder. It weighs 17 pounds, cures without pressure, and may be used on the job or anywhere that electric current is available. The special rubber used in the vulcanizing process is termed Air-Weld rubber, and is made exclusively for Schlegel by the Goodyear Tire & Rubber Co. Procedure for making spot repairs with the Air-Welder is the same as that used with a hot plate or vulcanizer through the cementing operation. Cement used in the process is also made by Goodyear and is known as Wingfoot Vulcanizing Cement.

The Air-Weld Process consists of filling the tire's injury cavity with rubber to the outer surface of the tire. The Air-Welder with blower cone is placed over the repair area, with edges of the cone about one-quarter to one-half inch from the tire to allow hot air to flow freely out of the cone. After the repair rubber becomes warm and soft, it is rolled down, then Air-Welder is replaced over the repair area during the remainder of the cure. Curing time is normally from one to three hours depending upon the depth of the repair.

Complete equipment for the Air-Weld repair method includes the Air-Welder, 110-volt, 60 cycle AC; one quarter-inch electric drill, with adapter and one rasp, 110-volt, 60 Cycle AC; Air-Weld rubber, available in 10 pound rolls, and Air-Weld Cement, supplied in one-gallon cans.

Gray Co., Inc., Minneapolis, Minn., has developed a heavy-duty, air-operated **Powerflo Pump** for pumping industrial fluids and semi-fluids from original 5-gallon containers. Special feature of the new pump is a new-type follower plate which utilizes the weight of the pump to insure positive priming at all times.



Campbell Model 1404-2

Don't Take Chances With Moisture

If your dusting machine clogs The Campbell 1404-2 Duster has a pump *within* the chamber up, moisture from factory air lines is probably responsible, which *makes* its *own* air. No connections are needed. Chamber is moisture-proof, dust-proof, air-tight. Ejects three ounces to 30 pounds of dust per hour in a mist or cloud.

Write for quotation and get trouble-free operation. Immediate delivery.

ASK ABOUT OTHER FEMCO-BUILT PRODUCTS

1—Campbell Foam Rubber Cutting Machine;
2—Campbell Rubber Floor Tile Cutting and Blocking Machine.

Prices and illustrated folder on request

The FALLS ENGINEERING AND MACHINE CO.
1734 FRONT ST. CUYAHOGA FALLS, OHIO
Established 1917

DU PONT Select Rubber Colors

Rubber Dispersed—for dry rubber and synthetic rubber stocks

- CLEAN—NO DUSTING, NO FLY-LOSS
- EASY TO DISPERSE
- CAN BE ACCURATELY WEIGHED

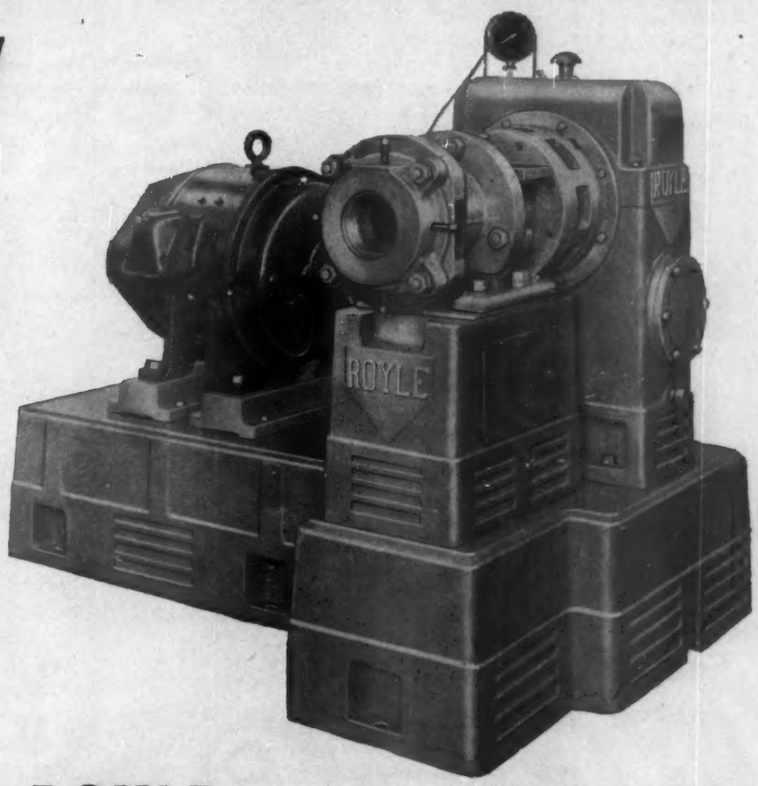
Water-dispersible—for latex

- NO GRINDING EQUIPMENT NECESSARY
- NO CONTAMINATION OF GRINDING EQUIPMENT

DU PONT RUBBER CHEMICALS
E. I. DU PONT DE NEMOURS & CO. (INC.)
WILMINGTON 98, DELAWARE
BETTER THINGS FOR BETTER LIVING ...THROUGH CHEMISTRY

For Dependability *Choose* ROYLE

Continuous Extruding Machines for the Rubber, Plastic and Chemical Industries
•
Continuous Vulcanizing Machines for Rubber Wire Insulation
•
Plastic Wire Insulation Machines
•
Strainers
•
Cooling Troughs
•
Light Wire and Cable Capstans
•
Motorized Take-Ups
•
Temperature Control Units



JOHN ROYLE & SONS — ROYLE, PATERSON, N. J.

PIONEER BUILDERS OF EXTRUSION MACHINES SINCE 1880

London, England — James Day (Machinery) Ltd. — REgent 2430
Home Office — E. B. Trout J. W. VanRiper — SHerwood 2-8262
Akron, Ohio — J. C. Clinefelter — JEfferson 3264
Los Angeles, Cal. — H. M. Royal, Inc. — LOgan 3361

PATERSON 3, NEW JERSEY

ROYLE No. 2 Extruding Machine. Non-extended cylinder, plain tubing head, direct coupled drive. This extruding machine is designed for conventional applications in the rubber field.

Camachines

wherever rubber or plastics are processed in ROLL form

CAMACHINE engineers have perfected specialized slitters and roll-winders to meet requirements wherever rubber or plastics are made, shipped, processed or used in roll form.

A typical example is Camachine 6-2C, widely used by makers of tires, belting, hose, proofed goods and sheet plastics. Camachine 6-2C handles webs up to 62" wide, producing uniformly rewound rolls up to 24" diameter, and slitting strip as narrow as ½". Like all Camachines, 6-2C is simple in construction, easy and economical to operate.

Camachine specialists will gladly provide counsel regarding the right type of slitting and roll-winding equipment to meet your needs. Write for literature.

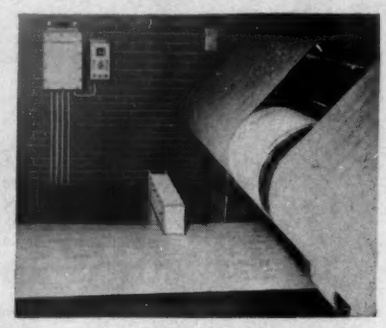
CAMERON MACHINE COMPANY
61 Poplar Street, Brooklyn 2, N. Y.

Camachines
FOR FAST, TOP QUALITY ROLL PRODUCTION
. . . the world over

AA-198

G. E. Beta-Ray Thickness Gage

A new instrument, designed to measure continuously the thickness of sheet materials moving along a conveyor without contacting or disturbing the material, has been announced by the Special Products Division of the General Electric Co., Schenectady 5, N. Y. Called the Beta-Ray Thickness Gage, the instrument measures the



amount of beta-rays which are absorbed by the sheet material being checked. By measuring absorption, the device actually indicates the mass per unit area of the material under test, but the equipment can be calibrated in terms of thickness to help operators maintain product uniformity.

In operation, the Beta-Ray Thickness Gage measures the deviation from a chosen setting by registering the amount of beta-rays which the material under test absorbs. The source of beta rays in the gage is 2.5 millicuries of strontium 90, a radio-active isotope. Those rays unabsorbed by the material passing through the gaging head are gathered in an ionization chamber. An attenuated 90-cycle signal is added in phase opposition to cancel the signal from the ionization chamber. The attenuator voltage, therefore, is a measure of the ionization chamber voltage, and of the amount of material in the beta-ray beam.

Operating on a power supply of 100 to 125 volts, 60 cycles, ± 0.3 cycles, power consumption of the gage is about 150 watts. Accuracy is ± 2% or better between normal periods of calibration, while drift is not more than 1% per hour after a 30-minute warm-up period. Under normal conditions, calibration need not be made oftener than once every four hours. The gage finds application in monitoring the thickness of rubber, plastics, textiles, metal foils and other sheet materials.

Stearns Permanent Magnetic Pulley

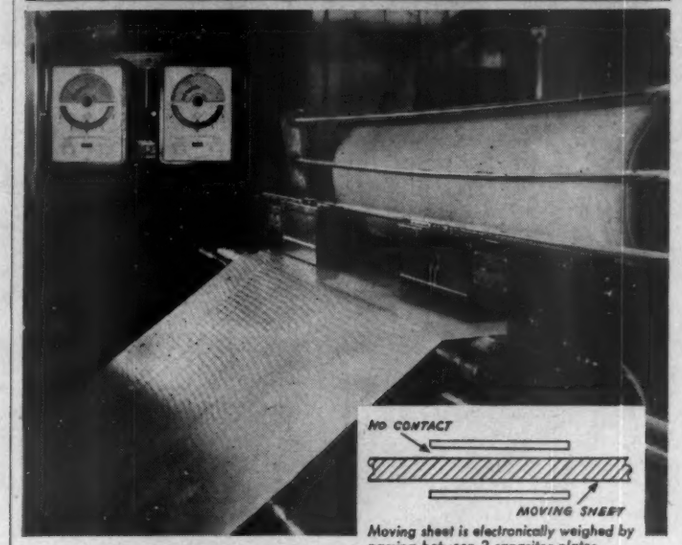
A permanent magnetic pulley which incorporates a special design of Alnico metal poles, self-energized and requiring no electrical current, was recently announced by the Stearns Magnetic Manufacturing Co., Milwaukee 4, Wisc. The pulley is applicable for problems involving automatic removal of tramp iron from raw or processed materials, for separation of magnetic and non-magnetic products, for reclaiming secondary metals, and protection of machinery grinders, pulverizers or similar equipment. It is designed for uniform high magnetc strength over the entire face of the pulley and because no wiring or electrical connections are needed the pulley can be operated under all atmospheric and temperature conditions. More than 50 sizes are available from 12 inch diameter by 12 inch width to 30 inches by 60 inches.

Model 15-R Thermex Unit

Efficiency in pre-heating large rubber and plastic preforms is made possible by the recently introduced Model 15-R Thermex Red Head high frequency dielectric heating unit built by the Thermex Division of the Girdler Corp., Louisville 1, Ky. Model 15-R will raise

the temperature of 10 pounds of average material from 70° to 250°F. in one minute. Larger loads can be raised through the same temperature range in slightly longer heating cycles. The unit handles preforms up to 6 by 23 by 26 inches. Of all-steel construction, the Thermex unit is copper plated where required and totally enclosed. It occupies a floor area of 37 by 37 inches, is fully portable and air-cooled. The oscillator, preheater and rectifier sections are contained in individual cabinets, rigidly mounted one upon the other. Model 15-R operates on either 230 or 440-volts. The preheater section has a control panel with plate current meter, timer (range 0-5 minutes), start and stop buttons, and terminals for connecting remote control sections.

Continuously! Electronically!
WEIGHS SHEET STOCK WITHOUT CONTACT



Moving sheet is electronically weighed by passing between 2 capacitor plates.

This Unique System automatically and continuously weighs calendered sheeted material in process . . . indicates instantly any variation in weight of material passing through measuring heads . . . and records weight in ounces per square yard or other suitable units.

By taking advantage of electronic principles, the Verigraph head measures without contacting material. Errors due to speed, surface irregularities and penetration of contacting-type measuring elements are eliminated.

This Foxboro Verigraph Recording System is used on rubber and plastic sheeting by such leading companies as Goodrich, Goodyear, Firestone, General, U. S. Rubber, and Dow Chemicals. It reduces rejects, improves uniformity, and can save tons of material annually. Write for Bulletin No. 234. The Foxboro Company, 256 Neponset Ave., Foxboro, Mass., U. S. A.

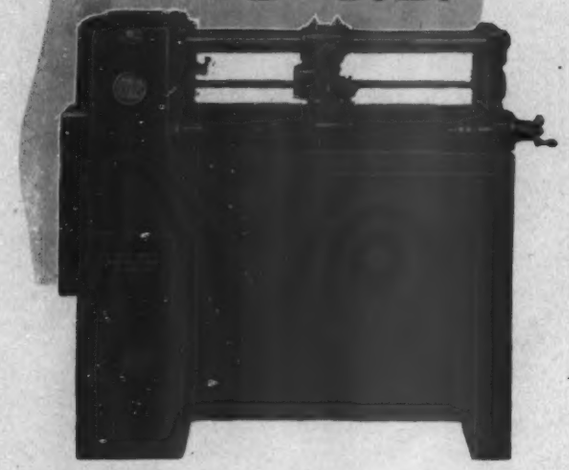
An exclusive Foxboro development, the Verigraph Weight Recorder applies the speed and sensitivity of electronics to weight recording. Simple to install and operate. Used by leading companies on critical calendering since 1926!

FOXBORO
REG. U. S. PAT. OFF.
RECORDING
CONTROLLING
INDICATING
INSTRUMENTS

You asked for it ... here it is!

BLACK ROCK A-3 WASHER CUTTER

FOR CUTTING WASHERS UP TO **3" O.D.**



RELEASE YOUR HEAVIER MACHINES FOR THE LARGER WORK

- Eliminate all the troublesome hand cutting and hand production methods with the New Modern Black Rock A-3.
- Ease of loading, unloading; the unique Cam installation and knife stroke adjustment, make this machine ideal for fast, efficient low cost short run production.
- Years of trouble-free operation are assured through the generous use of anti-friction bearings along with hardened alloy steel parts, subject to wear, and splash lubrication within the gear box.

Can be supplied as floor model with cabinet base as shown, or without cabinet for bench mounting.

Write, wire, phone today for further information.

FINE BR TOOLS

BLACK ROCK MFG. CO.

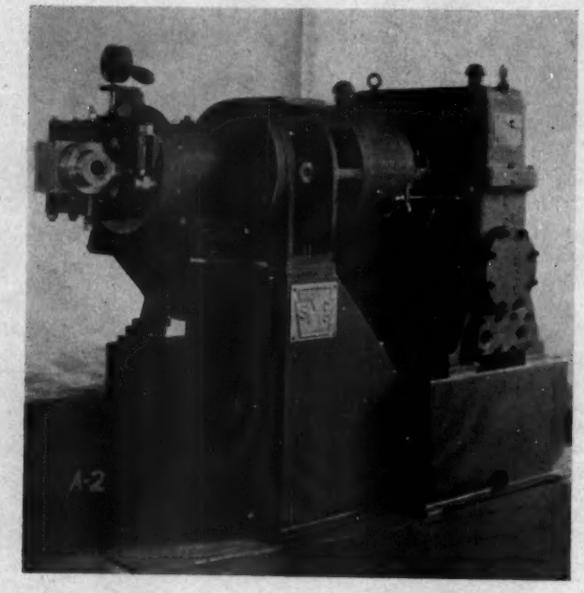
179 Osborne Street Bridgeport 5, Conn.

N.Y. Office: 261 Broadway

Pacific Rep.: Lombard Smith, Los Angeles, Cal.

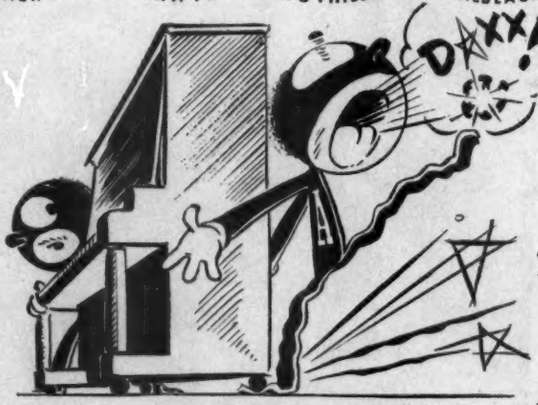
Davis-Standard Extruder

Built both in rubber and plastics types, the new Davis-Standard Extruders recently announced by the Standard Machinery Co., Mystic, Conn., are heated by either fluid or electricity as the job or the class of work may require. The machines are built in 2-inch, 3¼-inch,



4½-inch and 6-inch cylinder bore sizes. All sizes are equipped with high quality worm and gear drives and all moving parts run in anti-friction bearings. Thrust is taken by a heavy duty roller bearing and lubrication is by a positive lift and gravity system so that all rotating members are constantly supplied with a bath of cooled oil. Particular emphasis has been placed on the design of head equipment of all types for these machines. The accompanying photograph illustrates a 4½-inch Davis-Standard hose jacketing tuber for rubber hose.

PHILBLACK O PHILBLACK A PHILBLACK O PHILBLACK A PHILBLACK O PHILBLACK A PHILBLACK O PHILBLACK A PHILBLACK O PHILBLACK A PHILBLACK O PHILBLACK A PHILBLACK O PHILBLACK A PHILBLACK O PHILBLACK A PHILBLACK O



Philippic?

SEE PAGE 256

PHILBLACK O PHILBLACK A PHILBLACK O PHILBLACK A PHILBLACK O

HOGGSON BRAND
Since 1849

Cementing & Vulcanizing Tools

HUNDREDS OF DESIGNS —

Scores of standard tools carried in stock for working rubber, leather, plastics, paper, cement, etc. Special tools made to your order. Also—steel letters, figures, stamps, dies and molds. Explain the job, we'll suggest the tool.

HOGGSON & PETTIS MFG. CO.
141A Brewery St., New Haven 11, Conn.
Pac. Coast: H. M. Royal, Inc., Los Angeles

IT'S DUCK SOUP

TO PREVENT
SCORCHED RUBBER

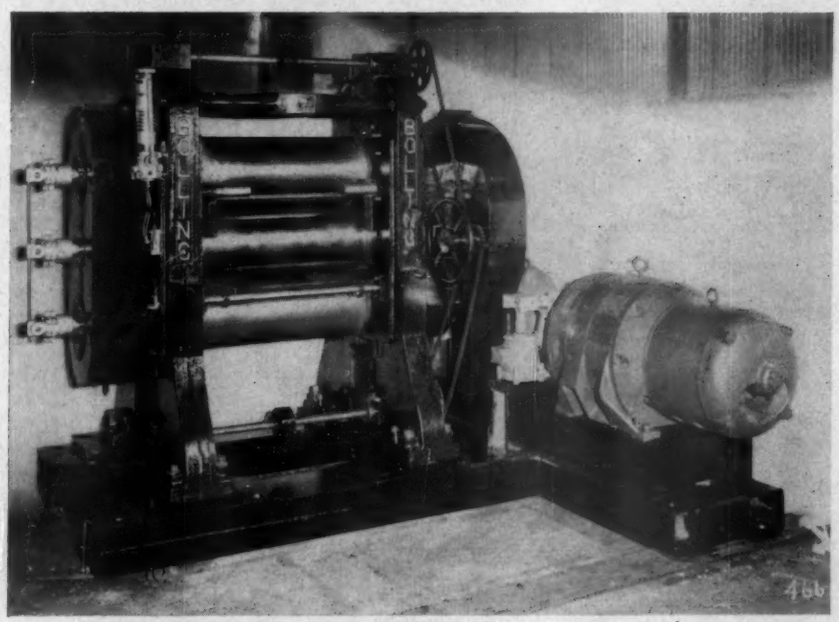
The scorching of rubber is a needless waste and is preventable. Make the use of Cambridge Pyrometers routine procedure for checking temperatures during calendering, mixing, extruding and molding. They are accurate, rugged, quick-acting instruments that take the guesswork out of temperature determination.

In addition to the Roll Model, Cambridge offers the Needle Model for checking temperatures within the mass, the Mold Model for reaching into mold cavities and multi-purpose Combination Models.

Send for bulletin 194S.

CAMBRIDGE
ROLL • NEEDLE • MOLD
PYROMETERS

Cambridge Instrument Co., Inc.
3754 Grand Central Terminal, New York 17, N. Y.
PIONEER MANUFACTURERS OF PRECISION INSTRUMENTS



PACEMAKER

Illustration shows a 12" x 32" plastic calender on one piece base with compact right angle drive.

Calenders are available in sizes from 8" x 16" rolls to 24" x 68" rolls, 2, 3 or 4 roll.

STEWART BOLLING & COMPANY INC.

3190 East 65th Street
Cleveland 4, Ohio
Tel: Michigan 2850

MILLS • CALENDERS • REFINERS • CRACKERS • INTENSIVE MIXERS • BALE CUTTERS • HYDRAULIC PRESSES (ALL TYPES) • PUMPING UNITS • VULCANIZERS • GEARS • GEAR REDUCTION UNITS • DRIVES

Dedicated to *better* finishes

As ONE of the oldest and most experienced formulators of special coatings in the Rubber Industry, STANLEY is continually called upon by leading manufacturers to supply them with tough, reliable, and long-lived coatings — no matter how unusual or complex their specifications.

In addition to its rapidly expanding line of rubber coatings, STANLEY offers *VINYL INKS* for rotogravure and silk screen printing . . . *ORGANOSOLS* for fabric or paper coatings . . . *PLASTISOLS* for moulding or coating.

If you have a product, regardless of its material, requiring a finish with special characteristics, ask us about it. STANLEY CHEMICAL COMPANY, EAST BERLIN, CONNECTICUT.

STANLEY

STANLEY CHEMICAL

INDUSTRIAL COATINGS

LACQUERS SYNTHETICS JAPANS ENAMELS

REVIEWS

BOOKS

Wartime Production Controls. By D. Novick, M. Anshen, and W. C. Truppner. Published by the Columbia University Press, Morningside Heights, New York, N. Y. 6 x 9 in. 442 pp. $6.00.

This book is a critical appriasal of the techniques of production control devised and administered by the War Production Board and its predecessor agencies during the 1940-45 wartime period. It concentrates on a detailed analysis of the methods and procedures by means of which the wartime administration of the industrial economy of the United States was conducted. It does not deal with the making of policy, but rather with the machinery for carrying out policy decisions, and effectively analyzes those methods and procedures by means of which broad policies were made effective or permitted to fail. The book includes a 17-page chapter devoted to rubber and tires, which contains a critical analysis of the Tire Allotment Plan. All three of the authors were connected with WPB at varying times.

•

Meet the Plastics. By Clark Robinson. Published by the Macmillan Co., 60 Fifth Ave., New York 11, N. Y. 6 x 9 in. 172 pp. $3.75.

This book is a successful attempt to bridge the gap for the layman between the available technical information on plastics and the popular feature material which, as a general rule, over-glamorizes the potentials of the various materials. The author explains in understandable terms the basic chemistry of plastics, the ingredients and special characteristics of each of the various kinds of plastics, the forms in which each is available, and the uses and processing methods for each type. The vocational opportunities offered by the various branches of the industry are discussed. At the end of the book there are useful reference lists of plastics manufacturers and sources of supply, materials and trade names. A list of schools offering technical training in the plastics art is also included. The book has 11 chapters, an appendix and a subject index.

•

114 Check Points on How to Prevent Grievances. By Bleick von Bleicken and Carl Heyl. Published by the National Foremen's Instittue, Inc., Deep River, Conn. 8½ x 11 in. 36 pp. $1.00.

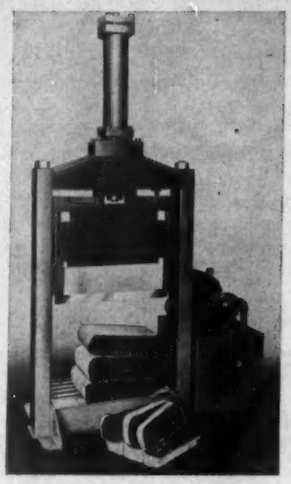
As indicated by its title, this report provides management with expert opinion poll questions to enable a wise management to get to the root of employee grievances and find remedies for them. The purpose of the survey is not only to locate definite grievances which result in costly loss of company efficiency, but also to stimulate thinking on the part of all responsible executives who participate in the survey. Answers to the 114 check questions are intended to develop the course of action which must be taken in order to improve company morale.

•

Formula for Supervision. By H. W. Heinrich. Published by the National Foremen's Institute, Inc., Deep River, Conn. 5¼ x 8¼ in. 96 pp. $1.00.

Intended as a manual for supervisors and executives, this booklet outlines the application of supervisory control to secure safe, efficient work performance. A four-step formula is given, namely, (1) Identify the problem, (2) Find and verify the reason, (3) Select the remedy, and (4) Apply the remedy. Twenty-four kinds of problems are outlined, with six in each of four groups. The eight different reasons for the existence of problems are listed with solutions offered. Specific case histories are discussed.

CRUDE RUBBER BALE CUTTER



Complete Unit

Fully Assembled

Hydraulic

Operation

High Production

•

An efficient machine of simple design for cutting bales of crude, synthetic and reclaimed rubber or similar materials. Cuts without aid of water or other lubricant. One man operation—safety control.

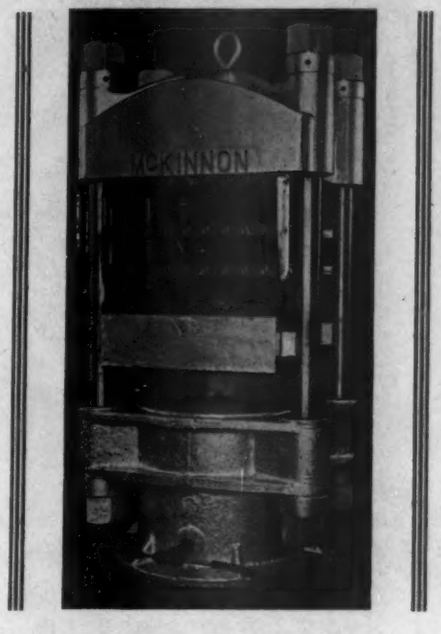
•

SPADONE MACHINE COMPANX

10 East 43rd St. New York 17, N. Y.

STANDARD OR SPECIAL BUILT

HYDRAULIC PRESSES



The McKinnon Iron Works Co.

ASHTABULA, OHIO

TRIPLE MOLDING UNIT FOR BATHING CAPS

All steel construction.

Wearing parts fitted with bronze liners.

Can be fitted with steam or electrically heated platens, size 22" x 14".

Push back rams fitted to table and to core holding bracket.

Line pressure 1 ton per square inch.

Total platen pressure 17 tons.

Operated by oil pump giving quick approach and return speeds to table.

DIMENSIONS

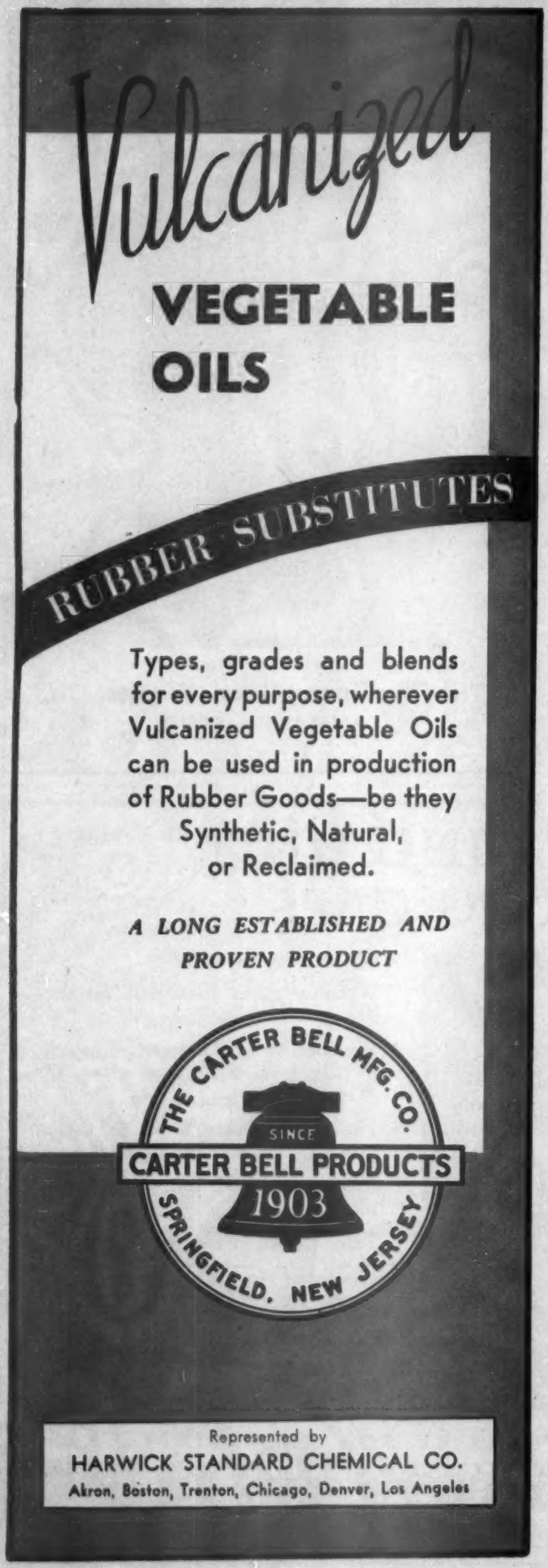
18 ft. x 2 ft. x 7 ft. high

Approximate weight — 7 tons

MOLD MAKERS FOR THE RUBBER INDUSTRY FOR OVER SIXTY YEARS

SKELTON, SLEAT & CO., LTD.

SOUTH BERMONDSEY, LONDON, S.E. 16, ENGLAND. *CABLES:* INADHESIVE, LONDON


Vulcanized
VEGETABLE
OILS
RUBBER SUBSTITUTES
Types, grades and blends for every purpose, wherever Vulcanized Vegetable Oils can be used in production of Rubber Goods—be they Synthetic, Natural, or Reclaimed.
A LONG ESTABLISHED AND PROVEN PRODUCT
THE CARTER BELL MFG. CO.
SINCE
CARTER BELL PRODUCTS
1903
SPRINGFIELD, NEW JERSEY
Represented by
HARWICK STANDARD CHEMICAL CO.
Akron, Boston, Trenton, Chicago, Denver, Los Angeles

Photography in Engineering. (American Edition). By C. H. S. Tupholme. Published by Chemical Publishing Co., Inc., 26 Court St., Brooklyn 2, N. Y. 5½ x 8½ in. 276 pp. $6.50.

The value of photography in engineering is emphasized in this book which presents in a convenient form various photographic techniques which have proved of definite use in assisting the engineer in one or more of the many branches of his work. The author has not attempted to cover more than a few specific applications under each of the eight chapters into which the book is divided, but each application was selected because it is typical of many and, with slight variations in technique, readily lend themselves to other applications. One chapter is devoted to x-ray and electron diffiraction and microradiography and another to infrared photography. A subject index is included.

•

Must We Hide? By R. E. Lapp. Published by Addison-Wesley Press, Inc., Kendall Square, Cambridge 42, Mass. 5½ x 8½ in. 182 pp. $3.00.

Specifically written for the layman, this book is an unemotional, straightforward appraisal of the power and limitations of the atom bomb. It is particularly informative in outlining problems of communication and transportation in areas stricken by atomic attack. New detection devices, such as the proposed radar "picket fence," are discussed, and new methods of interception, including jet propelled aircraft, possible use of rockets, and other recently developed weapons, are considered. A detailed analysis of the possible effects of blast upon various types of structures, including New York's skyscrapers, is contained in the book. The author is a well-known American physicist and an authority on atomic energy.

BOOKLETS, CATALOGS, etc.

Philblack O and Philblack A in Natural and Synthetic Rubbers. Philblack Sales Division, Phillips Petroleum Co., Akron 8, Ohio. 8½ x 11 in. 40 pp.

The manufacture, properties and applications of both Philblack O and A are outlined in considerable detail in this comprehensive technical report. Comparisons of Philblack O and EPC at equal parts loading in GR-S and MPC in natural rubber are shown, as well as comparisons of Philblack O and EPC in natural rubber treads containing reclaim. The use of Philblack A in GR-S with variable loadings and in natural rubber-reclaim low cost treads is discussed, while a comparison between Philblack A and zinc oxide in carcass stocks is outlined. The use of blends of Philblack O and A in natural rubber tread stocks, and the use of either in natural rubber inner tubes, in butyl rubber, and in 41° F. rubber tread stocks is also discussed, with physical test results given in each instance. The booklet also contains the results of a moisture absorption study of Philblack O, Philblack A and other commercial blacks, while details of the test methods employed for the data given on various compounds in the report are given. Some data on tire road tests is also given.

•

Paracril 26NS90 Compounds: Mechanical Goods Type. Enjay Co., Inc., 15 West 51st St., New York 19, N. Y. 8½ x 11 in. 9 pp.

This technical report consists of a number of loose sheets indicating the physical properties of a series of mechanical goods compounds incorporating Paracril 26NS90. Properties are shown in the original state of the compound and after various types of aging. The compounds were developed with variations in plasticizers and carbon blacks, and are arranged in hardnesses of 40, 50, 60 and 70, plus or minus 5 in each case. Many of the compounds shown meet the specifications of ASTM D-735-48-T, which are widely used for automotive and aircraft applications.

Maglite-M: A Magnesium Oxide. By Robert D. Abbott. Marine Magnesium Products Corp., South San Francisco, Calif. 6 x 9¼ in. 24 pp.

Comprehensive data on the physical and chemical characteristics of Maglite-M, a relatively new magnesium oxide produced by a patented process for use with neoprene, is contained in this technical report. Data on the use of the material as an anti-scorching agent, as a protective agent against stock set-up during prevulcanization storage, as well as its curing characteristics and effects of variable amounts in different stocks is given. A new method for evaluating the surface activity of magnesium compounds is briefly explained in the booklet.

•

Rubber in Bituminous Road Constructions. By F. T. Bokman. Issued by Rubber Stichting, P. O. Box 66, Delft, Holland. 6 x 8½ in. 24 pp.

As indicated by its title, this booklet contains information on the application of rubber in bituminous road constructions, including results ascertained to date from experimental strips laid in various parts of the world. Some excellent photographs of test areas in the Netherlands are contained in the booklet, with details as to the compositions used. Some general cost figures are given. The booklet also contains some data on joint fillers.

•

Continuous Automatic Caustic Dilution. %Proportioneers, Inc.%, 9 Codding St., Providence 1, R. I. 9 x 11 in. 8 pp.

The importance of liquid caustic soda to various industries, including the rubber reclaiming industry, is stressed in this technical report which is devoted, in large part, to a description of the design and application of the company's automatic caustic diluter. A dilution table is included which will enable the user of 50% liquid caustic soda to determine the actual amount of NaOH in most solutions. A flow chart depicting the operating of the automatic diluter is also included.

•

Fight Corrosion with the Reliance Explosion-Proof and Corrosion-Resisting Motor. (Bulletin C-130). Reliance Electric and Engineering Co., 1076 Ivanhoe Road, Cleveland 10, Ohio. 8½ x 11 in. 4 pp.

Design features exclusive with the new Reliance motor are enumerated and illustrated in this bulletin. A brief description is provided on new impregnating and baking techniques, by which Reliance motor stators are given extra protection against oil, dirt, moisture and injurious fumes.

POWDERED CELLULOSE

Light in weight
Easily dispersed
Uniform
White

CONTRIBUTES

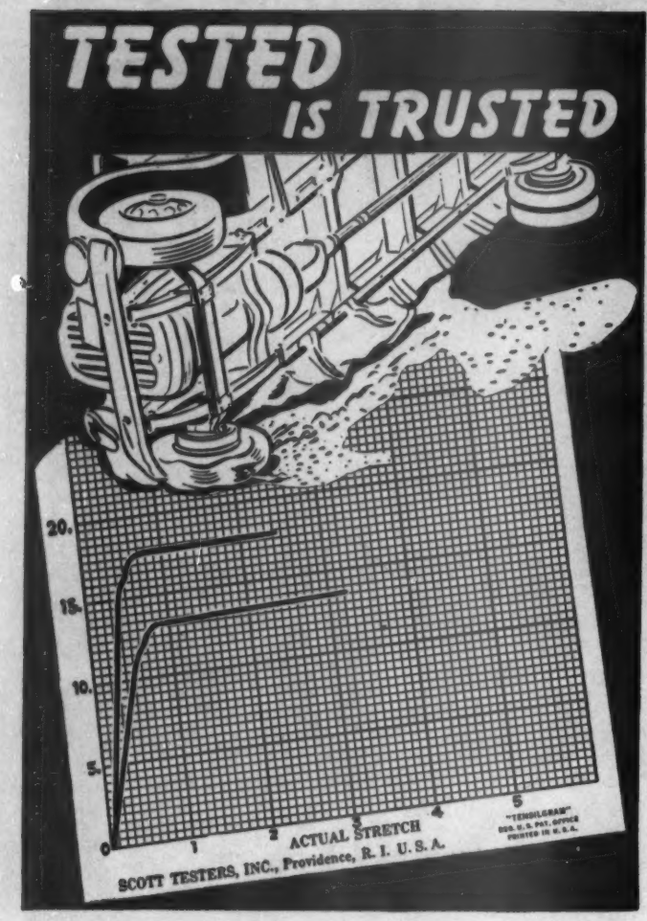
Controlled stiffness and hardness
Smoother surfaces
Reduced shrinkage
Low gravity
Economy

Let us tell you of the wide use of Solka-Floc as processing aid — write our Technical Service Department for recommendations and samples.

BROWN COMPANY®

FOREMOST PRODUCERS PURIFIED CELLULOSE

PULP SALES OFFICES: 500 FIFTH AVENUE, NEW YORK 18, N. Y. • 465 CONGRESS STREET, PORTLAND 3, ME. • 110 S. DEARBORN STREET, CHICAGO 3, ILL. • 58 SUTTER STREET, SAN FRANCISCO 4, CAL. • BROWN CORPORATION, 906 SUN LIFE BLDG., MONTREAL 2, P.Q., CANADA



Test cords to avoid *THIS*

Manufacturers who know *Scott Testers well, as applied to rubber, also can Scott-test their cord, fabric or wire components to predetermine performance of the finished product.

Scott IP-4 Inclined-plane Tester tests cord for tensile and hysteresis up to 50 lbs. tensile.

REQUEST CATALOG 48

*Registered trademark

SCOTT TESTERS INC. 85 Blackstone St. Providence, R. I.

Standard of the World

REVIEWS (CONT'D)

Barrett Elevators and Cranes. (Bulletin No. 10482). Barrett-Cravens Co., 4613 South Western Boulevard, Chicago 9, Ill. 8½ x 11 in. 36 pp.

The comprehensive line of Barrett elevators and portable cranes is presented in this bulletin. The elevators shown include portable hand-operated types with load capacities from 500 to 5,000 pounds, and lifting heights up to 36 feet, electric-operated portable types with capacities from 500 to 5,000 pounds, hand and electric-operated telescopic portable types, barrel and drum elevators including tilting models, pallet types, four post types, platform loading and balcony elevators, revolving base types, and floor-to-floor elevators. Portable cranes with fixed or revolving bases and electrically-operated hoists are also shown. The bulletin is illustrated and contains full information and specifications on the various models in the line.

•

Cochrane System of Condensate Drainage Control. (Publication No. 3250). Cochrane Corp., 17th St. & Allegheny Avenue, Philadelphia 32, Penna. 8½ x 11 in. 24 pp.

This bulletin describes the high pressure condensate return systems produced by the company. Data on steam flow conditions and heat exchange characteristics for the transfer of steam heat in heating, cooking, drying and pressing operations are provided. In addition to material and operating specifications, capacity ratings are given for both standard and high-differential units in the different sizes available. Differential pressures to 200 psi are listed and capacities for each unit are tabulated after each differential pressure for unit inlet pressures varying from 0 to 39 psi, 40 to 99 psi and for over 100 psi. Dimensioned drawings in color show the design and construction of the two types of drainage control units.

•

Stop Corrosion With Metallizing. (Bulletin No. 62). Metallizing Engineering Co., Inc., 38-14 30th St., Long Island City 1, N. Y. 8½ x 11 in. 8 pp.

Problems of corrosion and the means of preventing this industrial problem are considered in this booklet which discusses the protection of machinery and equipment through the metallizing process. Case histories of different units which had been treated with corrosion-resisting zinc or aluminum sprays are presented to testify to the effectiveness and permanency of the treatment. Various photographs are presented showing methods of application on different industrial units and installations.

•

The Human Race: The Travelers 1949 Book of Street and Highway Accident Data. Travelers Insurance Companies, Hartford, Conn. 6 x 9 in. 32 pp.

Fifteenth in a series published by the company, this booklet presents the current picture on traffic accidents and fatalities in the United States. The report, based on official records from every state, compares figures for 1948 and 1947 on the basis of age, sex, road and weather conditions, type of vehicle, mechanical condition of vehicles, type of accident, and many other factors. The grim record of traffic deaths and injuries is lightened by a pictorial presentation of the probable cause of many of the accidents.

COMPOUNDING FACILITIES AVAILABLE —We invite your inquiries.

PEQUANOC RUBBER COMPANY

Main Street Butler, N. J.

SIMPLEX
REG. TRADE MARK

RUBBER STRIP CUTTER

PATENTED

A PORTABLE machine capable of stripping slab rubber up to 1″ thick at the rate of 20,000 feet in 8 hours. Any width desired.

SPECIAL FEATURES

- Has micro-adjustment for accurate widths.
- Equipped with water tank which feeds water to the slotted knife and to the cut.
- Has repulsion induction motor which carries any over loads.
- Automatic sharpener device keeps knife keen and sharp.
- Has base with rollers and is very easy to handle.

Cuts within 1/64 inch to 1/100 inch tolerance depending on grades of rubber. Cuts a slab down to the last shaving. Cuts all grades of rubber including pure gum, sponge, etc. Cuts squarely—no rejects.

Now in use by many leading Rubber Manufacturers & Jobbers

Simplex Cloth Cutting Machine Co., Inc.

Manufacturers of a Complete Line of Cloth Cutting Machinery

270 West 39th St. New York 18, N. Y.

Cable Address—SIMPLEX, N. Y. *Phone*—WIsconsin 7-5547

DU PONT

POLYAC

- an accelerator activator for GR-I
- a stiffening agent for uncured GR-I
- an accelerator for neoprene latex

DU PONT RUBBER CHEMICALS

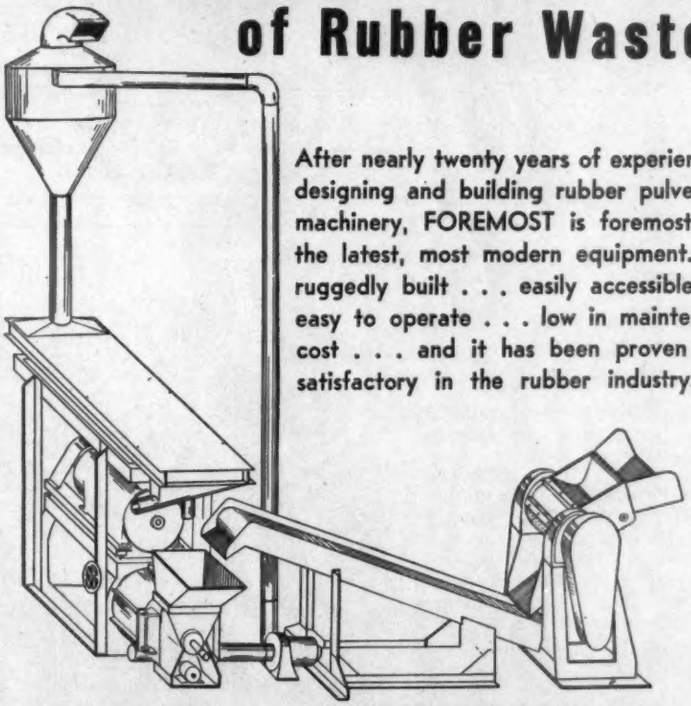
E. I. DU PONT DE NEMOURS & CO. (INC.)

WILMINGTON 98, DELAWARE

BETTER THINGS FOR BETTER LIVING ...THROUGH CHEMISTRY

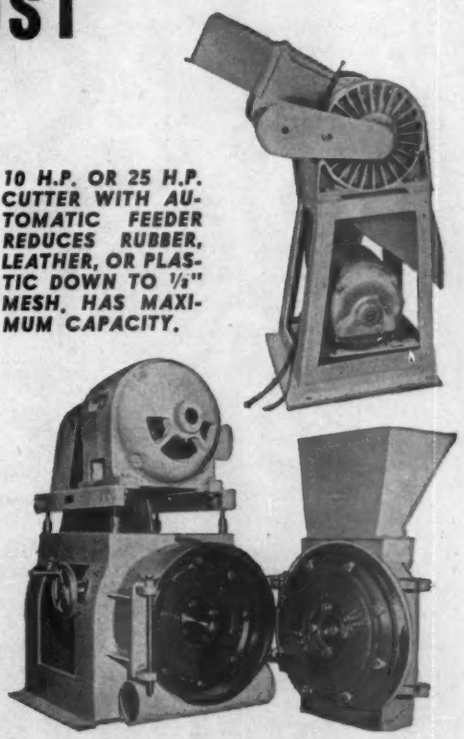
DU PONT

FOREMOST makes the MOST of Rubber Waste



After nearly twenty years of experience in designing and building rubber pulverizing machinery, FOREMOST is foremost with the latest, most modern equipment. It is ruggedly built . . . easily accessible . . . easy to operate . . . low in maintenance cost . . . and it has been proven most satisfactory in the rubber industry.

COMPLETE INSTALLATION: FULLY AUTOMATIC



10 H.P. OR 25 H.P. CUTTER WITH AUTOMATIC FEEDER REDUCES RUBBER, LEATHER, OR PLASTIC DOWN TO 1/2" MESH. HAS MAXIMUM CAPACITY.

50 H.P. GRINDER PULVERIZES TO FINEST MESH DESIRED

FOREMOST MACHINE BUILDERS, INC.

For Details Write to T. F. Schlicksupp, Pres., 52 Vanderbilt Ave., New York 17, N. Y.

MARKETS

Rubber – Crude, Reclaimed and Scrap – Cotton – Ducks – Tire Fabrics – Sheetings

NEW YORK, JUNE 10, 1949

Natural Rubber

The price of spot rubber on the Commodity Exchange has swung in a range of 2.55 cents since our last report (May 6), high for the period being 18.43 cents reached on May 12, and low being 15.88 reached on June 7. The average price of spot rubber for the month of May was 17.92 cents based on 21 trading days, which compares with an average of 18.53 cents for the month of April.

The Secretariat of the Rubber Study Group has estimated world production of natural rubber during April at 115,000 long tons and world consumption at 127,500 tons. World stocks of natural rubber were estimated at 770,000 tons on January 1, 1949. This figure included an estimated 15,000 tons that has since been placed in a strategic reserve by the French Government.

The natural rubber market has been reflecting a number of adverse influences in the economic picture. Of particular significance has been the widespread report of a business recession, the general slump in prices for major commodities, none too favorable reports on tire sales for the first four months of this year compared with a year ago, uncertainty over the tire sales outlook, and the uneasiness over the possible devaluation of the pound sterling.

These factors have more than overshadowed the reports of some curtailment of natural rubber production in Malaya as well as Indonesia, and the fact that natural rubber is selling at a price approximately 2 cents below that of GR-S.

Today's quotations in the outside market, London and Singapore follow:

Outside Market

No. 1 Ribbed Smoked Sheets:	
Spot	.16⅛
June	.16⅜
July	.16⅜
Thin Latex Crepe:	
Spot	.22⅛
June	.22⅜
Thin Brown Crepe, No. 2	.14⅜
Ambers, No. 3	.14¼
Flat Bark Crepe	.12¼

London Market

(Standard Smoked Sheets)

July	16.88 - 17.08
October-December	16.25 - 16.45

Singapore Market

(Standard Smoked Sheets)

July	15.32 - 15.48

Synthetic Rubber

(Dry Types-Per Pound)

Butaprene NF	.390 - .415
Butaprene NL	.400 - .425
Butaprene NAA	.440 - .465
Butaprene NXM	.470 - .495
Chemigum 30 N4NS	.400 - .470
Chemigum 50N4NS	.400 - .470
Chemigum N3	.450 - .520
GR-I	—— - .155
GR-S	—— - .185
Hycar OR-25	.450 - .460
Hycar OR-15	.520 - .530
Hycar OS-10	.500 - .510
Neoprene Type E	—— - .650
Neoprene Types CG and AC	—— - .500
Neoprene Types FR and KNR	—— - .750
Neoprene Type S	—— - .320
Paracril 18	.430 - .450
Paracril 26	.440 - .460
Paracril 35	.510 - .530
Silastic (compounded)	2.35 - 4.40
Thiokol Type A	.370 - .470
Thiokol Type ST	.750 - .850
Thiokol Type FA	.520 - .620
Thiokol PR-1	.750 - .850

Scrap Rubber

The scrap rubber market continues at a consistently low level and volume is still limited. Earlier reports of tentative buying for the eastern sectors of Germany have not been confirmed and export conditions remain at relatively low levels. Some slight changes have been noted in selling prices. Current quotations follow:

Mixed passenger tires	ton	$12.00
Beadless truck tires	ton	nom.
Mixed truck tires	ton	13.00
Beadless passenger tires	ton	nom.
No. 1 passenger peelings	ton	42.50
No. 1 truck peelings	ton	42.50
Red passenger tubes	lb.	.06¾
Black passenger tubes	lb.	.03½
Mixed passenger tubes	lb.	.03½
No. 2 truck tubes	lb.	nom.
Red truck tubes	lb.	.06½
Black truck tubes	lb.	.03¼
Buffings	ton	15.00

Reclaimed Rubber

Consumption of reclaim for the first four months of the year is estimated at 74,876 tons by the U. S. Department of Commerce. The ratio of reclaim consumption to total new rubber consumption continues at levels considerably below those established last year. Prices for reclaim remain at substantially the same levels. Current quotations follow:

Tires

Black, Acid (Natural)	lb.	.09 - .09½
Black, Digester (Natural)	lb.	.08½ - .09
Peels No. 1	lb.	.09 - .09½
Whole Tire (Blend)	lb.	.08½ - .09

Inner Tubes

Black (Natural)	lb.	.12¾ - .13¼
Red (Natural)	lb.	.13½ - .14½
Butyl	lb.	.08½ - .09

Shoe

Unwashed (Natural)	lb.	.08¼ - .08¾

Cotton Tire Fabrics

Advices from trade sources indicate that the market for cotton tire fabrics continues at the low levels evidenced during the past few months. Foreign monetary exchange difficulties continue to influence the export market. The general situation has been influenced by the tire industry's changeover from cotton tire fabric to rayon and nylon cords. Current quotations follow:

Standard, Peeler, 12/4/2	lb.	.72
Standard, Peeler, 14/4/2	lb.	.74
Standard, Peeler, 16/4/3	lb.	.7650
Extra Staple, Peeler, 12/4/2	lb.	.8315
Extra Staple, Peeler, 14/4/2	lb.	.8575
Extra Staple, Peeler, 16/4/3	lb.	.8825

Chafers

14.4 oz. (per sq. yard)	lb.	.71
9.25 oz. (per sq. yard)	lb.	.6725
11.65 oz. (per sq. yard)	lb.	.64
8.9 oz. (per sq. yard)	lb.	.6875

Cotton

The price of middling uplands on the Cotton Exchange has swung in the rather narrow range of 81 points since our last report (May 6), high for the period being 34.04 cents reached on May 10, and low being 33.23 cents reached on May 31. The average price of middling uplands for the month of May was 33.73 cents based on 24 trading days, which compares with an average of 33.84 cents for the month of April.

Firestone Textiles, Inc., New Bedford, Mass., has announced plans to reduce its working force of approximately 1100 to 300. The curtailment is due to the tire industry's almost complete changeover from cotton tire fabric to rayon and nylon cord, officials said. All cotton manufacturing processes are to be discontinued and the operations are to be confined to twisting and weaving nylon and rayon.

General indications are that Europe will need all of the originally estimated 3,750,000 bales of U. S. cotton tentatively scheduled under the Marshall Plan. In fact, because of the difficulty in securing required quality as well as volume of other cottons, even this amount may not be enough to permit full recovery.

According to trade advices, the 1950 cotton crop is likely to come under Government control. A bill was recently introduced in the Senate which would limit acreage to 22,500,000 acres in 1950 and 1951. This year the Department of Agriculture is expected to ask the farmers to vote for marketing quotas.

Quotations for middling uplands on the Exchange follow:

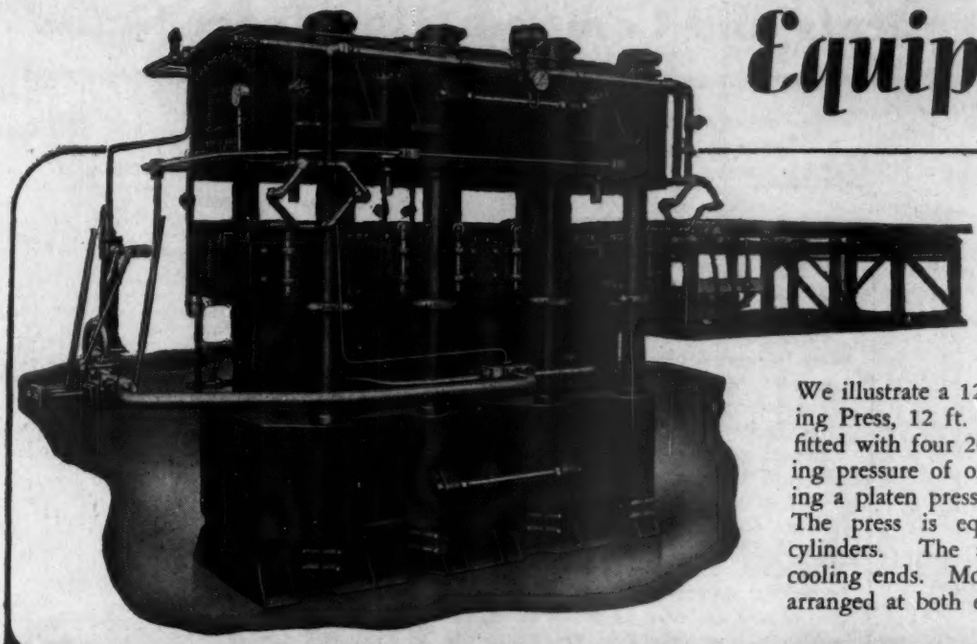
	May 6 Close	June 10 High	June 10 Low	June 10 Close
October	29.21	32.94	32.86	32.91
December	29.01	28.95	28.87	28.95
March	28.98	28.84	28.78	28.83

Closing Rubber Prices on New York Commodity Exchange (No. 1 R.S.S. Contract)

FROM MAY 7 TO JUNE 10

Date	Spot	July	Sept.	Dec.	Mar.	Sales
May 7	....	....	....	....	....	....
8	....	....	....	....	....	....
9	18.32	18.14	18.04	17.85	17.60	25
10	18.38	18.10	18.02	17.88	17.63	19
11	18.38	18.21	18.15	18.01	17.76	27
12	18.43	18.22	18.14	17.95	17.70	53
13	18.25	18.12	18.05	17.85	17.60	40
14	....	....	....	....	....	....
15	....	....	....	....	....	....
16	18.12	18.00	17.92	17.75	17.50	42
17	18.12	17.90	17.84	17.62	17.37	46
18	18.00	17.81	17.75	17.50	17.25	110
19	18.00	17.85	17.75	17.60	17.35	45
20	17.88	17.75	17.65	17.45	17.20	31
21	....	....	....	....	....	....
22	....	....	....	....	....	....
23	17.88	17.75	17.68	17.50	17.25	121
24	17.12	17.24	17.18	17.00	16.75	181
25	17.25	17.12	17.00	16.90	16.65	72
26	17.12	17.00	16.87	16.70	16.48	152
27	16.75	16.75	16.61	16.50	16.35	50
28	....	....	....	....	....	....
29	....	....	....	....	....	....
30	....	....	....	....	....	....
31	16.50	16.52	16.37	16.26	16.11	45
June 1	16.00	15.95	15.85	15.75	15.68	264
2	16.50	16.50	16.40	16.30	16.20	89
3	16.25	16.16	16.05	15.96	15.85	92
4	....	....	....	....	....	....
5	....	....	....	....	....	....
6	16.00	16.10	15.90	15.82	15.70	154
7	15.88	15.97	15.80	15.70	15.50	78
8	16.50	16.46	16.34	16.20	16.00	67
9	16.62	16.65	16.50	16.35	16.15	69
10	16.38	16.39	16.21	16.05	15.85	98

Hydraulic Vulcanizing Equipment



We illustrate a 1250 ton single daylight Sheeting Press, 12 ft. long by 3 ft. 6 inches wide, fitted with four 20" rams, suitable for a working pressure of one ton per square inch, giving a platen pressure of 450 lbs. per sq. inch. The press is equipped with four opening cylinders. The steel steam chests have 9" cooling ends. Motor driven drawtable can be arranged at both ends of the press if desired.

FRANCIS SHAW & CO. LTD. MANCHESTER II ENGLAND

H 111

Stamford

"Factice" Vulcanized Oil

(REG. U. S. PAT. OFF.)

Our products are engineered to fill every need in natural and synthetic rubber compounding wherever the use of vulcanized oil is indicated.

We point with pride not only to a complete line of solid Brown, White, "Neophax" and "Amberex" grades, but also our aqueous dispersions and hydro-carbon solutions of "Factice" for use in their appropriate compounds.

Continuing research and development in our laboratory and rigid production control has made us the leader in this field.

The services of our laboratory are at your disposal in solving your compounding problems.

THE STAMFORD RUBBER SUPPLY CO.

STAMFORD. CONN.

Makers of Stamford "Factice" Vulcanized Oil Since 1900

(REG. U. S. PAT. OFF.)

CURRENT MARKET PRICES

Of Rubber Chemicals and Compounding Ingredients

JUNE 10, 1949

Prices are, in general, f.o.b. works. Range of prices indicates grade or quantity variations.

Abbreviations: bbls., barrels; c.l., carlot; cyl., cylinder; dlvd., delivered; dms., drums; l.c.l., less than carlot; M.B., masterbatch; min., minimum; ref., refined; sap., saponified; sp., special; syn., synthetic; t.c., tank cars.

[a] East of Mississippi.

—The arrangement of this section follows closely the Chemical Section of the 1947 RUBBER RED BOOK to which readers are referred to determine the classification of any material or brand name.

—Although suppliers of every material were contacted for price information, only those materials are listed for which quotations have been furnished us. The quotations are not guaranteed and prospective purchasers should contact suppliers for confirmation before placing orders. Suppliers are requested to send us regularly current prices on all of their materials used in the rubber industry.

—All requests for information or listings should be sent to Market Editor, RUBBER AGE, 250 West 57th St., New York 19, N. Y.

ACCELERATORS

A-1	lb.	.34	.39
A-10	lb.	.40	.47
A-19	lb.	.52	.58
A-32	lb.	.59	.69
A-77	lb.	.42	.55
A-100	lb.	.42	.55
Accelerator No. 8	lb.	—	.83
Accelerator—49	lb.	.44	.45
Accelerator—89	lb.	—	1.20
Accelerator—122	lb.	—	1.30
Accelerator—552	lb.	—	1.80
Accelerator—808	lb.	.59	.61
Accelerator—833	lb.	1.13	1.15
Acrin	lb.	—	.75
Acro AC-165	lb.	.37	.39
Altax	lb.	.35	.37
Arazate	lb.	—	2.16
Beutene	lb.	.59	.61
Bismate	lb.	—	3.00
B-J.F	lb.	.27	.29
Butasan	lb.	—	1.00
Butazate	lb.	—	1.00
Butyl Eight	lb.	1.00	1.25
Captax	lb.	.27	.29
C-P-B	lb.	—	1.95
Cumate	lb.	—	1.45
Cuprax	lb.	.60	.62
Dibenzo G-M-F	lb.	—	2.65
Diorthotolyguanidine	lb.	.48	.50
Diphenylguanidine	lb.	.39	.45
El-Sixty	lb.	.39	.46
Ethasan	lb.	—	1.00
Ethazate	lb.	—	1.00
Ethyl Thiurad	lb.	—	1.00
Ethyl Tuex	lb.	—	1.00
Formaniline	lb.	—	.40
G-M-F	lb.	—	2.50
Good-rite Erie	lb.	.32	.34
Guantal	lb.	.47	.54
Hepteen Base	lb.	.42 1.80	.44 1.85
Ledate	lb.	—	1.00
Mercaptobenzothiazole	lb.	.27	.29
Mercaptobenzothiazyl Disulfide	lb.	.35	.37
Methasan	lb.	—	1.00
Methazate	lb.	—	1.00
Monex	lb.	—	1.10
Mono Thiurad	lb.	—	1.10
Morfex	lb.	.53	.55
2-MT	lb.	.53	.55
Novac	lb.	—	1.40
A-13	lb.	.65	.67
O-X-A-F	lb.	.34	.36
Pentex	lb.	.74	.77
Flour	lb.	.12¼	.12¾
Phenex (tons)	lb.	—	.40
Pipazate	lb.	—	1.53
Pip-Pip	lb.	—	1.80
R-2 Crystals	lb.	—	1.75
RN-7 (dms.)	lb.	—	1.65
Rotax	lb.	.39	.41
SA 52	lb.	—	1.10
SA 57	lb.	—	1.00
SA 62	lb.	—	1.00
SA 66	lb.	—	1.45
SA 67	lb.	—	1.00
SA 77	lb.	—	1.00
Safex	lb.	—	1.15
Santocure	lb.	.55	.62
Selazate	lb.	—	1.45
Selenac (Ethyl, Methyl)	lb.	—	1.45
Setsit-5	lb.	.75	1.00
SPDX-GH (tons)	lb.	.64	.69
Tellurac	lb.	—	1.45
Tepidone	lb.	—	.55
Tetrone	lb.	—	1.25
A	lb.	—	1.85
Thiocarbanilide	lb.	.34	.39
Thiofide	lb.	.35	.42
Thionex	lb.	—	1.10
Thiotax	lb.	.27	.34
Thiurad	lb.	—	1.10
Thiuram E	lb.	—	1.00
M	lb.	—	1.10
Trimene	lb.	.54	.56
Base	lb.	1.03	1.06
Triphenylguanidine	lb.	—	.83
Tuads, Ethyl	lb.	—	1.00
Tuads, Methyl	lb.	—	1.10
Tuex	lb.	—	1.10
Ultex (tons)	lb.	—	1.00
Unads	lb.	—	1.10
Ureka	lb.	.55	.62
Blend B	lb.	.55	.62
C	lb.	.55	.62
Vitasan Crystals	lb.	.48	.53
Vulcanex	lb.	—	.45
Z-B-X	lb.	—	2.45
Zenite	lb.	.33	.35
A	lb.	.42	.44
B	lb.	.39	.41
Zenite Special	lb.	.34	.36
Zetax (coated)	lb.	.33	.35
(uncoated)	lb.	.34	.36
Zimate, Butyl	lb.	—	1.00
Zimate, Ethyl	lb.	—	1.00
Zimate, Methyl	lb.	—	1.00

ACTIVATORS

Blue Lead, Sublimed (dlvd.)	lb.	.15¾	.16¾
Fish Oil, Hydrogenated, Fatty Acid			
Hydrofol Acid (dlvd.)	lb.	.11½	.15
Hyfac 430 (dlvd.)	lb.	.16½	.17½
Neo-Fat H.F.O. (dlvd.)	lb.	.20	.21
Stearex Beads (dlvd.)	lb.	.28	.29½
Lime, Hydrated			
Arrowhead	ton	19.50	20.65
Sierra	ton	19.50	20.65
Litharge			
Eagle (dlvd.)	lb.	—	.1475
FBS (dlvd.)	lb.	—	.1475
Magnesium Oxide, Heavy			
General Magnesite	lb.	.05½	.08
Michigan No. 15	lb.	.0550	.0600
Permanente	lb.	.05	.06½
Magnesium Oxide, Light			
Baker's (Neoprene Grade)	lb.	—	.28
General Magnesite (Neoprene Grade)	lb.	—	.31
General Magnesite No. 101	lb.	—	.19
General Magnesite Standard	lb.	—	.22
K & M (Neoprene Grade)	lb.	—	.31
Maglite "M" (l.c.l.)	lb.	—	.31
Marine's (Neoprene Grade (l.c.l.)	lb.	—	.31
Michigan No. 30	lb.	—	.24
No. 40 Extra Light	lb.	—	.31
Witco Extra Light	lb.	.25	.27

ACTIVATORS (Cont'd)

Oleic Acid			
Emersol 210 (dlvd.)	lb.	.11¼	.13
L.C.P. Red Oil	lb.	.25½	.27¼
Red Oil (20-24 Saponified) (dlvd.)	lb.	.09¼	.11
Palm Oil Fatty Acid (c.l.)	lb.	—	.11
Potassium Oleate (drums)	lb.	—	.29½
Red Lead			
Eagle	lb.	—	.1575
No. 2 RM (dlvd.)	lb.	—	.1575
Sodium Laurate (drums)	lb.	—	.19
Sodium Oleate—Powder (drums)	lb.	—	.35
Paste (drums)	lb.	—	.20
Sodium Stearate—Powder (drums)	lb.	—	.35
USP Grade (drums)	lb.	—	.37
Stearic Acid, Single Pressed			
Emersol 110 (dlvd.)	lb.	.14	.14½
Stearex B (dlvd.)	lb.	.22	.23
Stearic Acid, Double Pressed			
Alba (dlvd.)	lb.	.24¼	.25¼
S-2-A (dlvd.)	lb.	.22½	.23½
S-2-B (dlvd.)	lb.	.22	.23
Stearic Acid, Other			
Neo-Fat 1-60 (dlvd.)	lb.	.19½	.20½
Neo-Fat 1-65 (dlvd.)	lb.	.22	.23
Stearite	cwt.	36.00	38.00
White Lead Basic Carbonate	lb.	.14¾	.15¾
White Lead Basic Sulfate	lb.	.20¼	.21¼
Zinc Laurate (c.l.)	lb.	—	.29
Laurex	lb.	.28	.29
Zinc Stearate	lb.	.40	.43
Aquazinc	lb.	.26	.35

Unclassified Activators

Actifat (dms.)	lb.	—	.18
Acidex	lb.	.09	.15
Aero Ac 50	lb.	.50	.56
165	lb.	.37	.39
Barak	lb.	—	.60
D-B-A	lb.	—	1.95
Delac J	lb.	.55	.57
Dibutylamine (dlvd.)	lb.	.49	.52½
NA-11	lb.	—	.65
Palmalene (drums)	lb.	—	.15
Polyac	lb.	—	1.40
Ridacto (drums)	lb.	.22	.24
Snodotte (dlvd.)	lb.	.14½	.15½
SOAC (min. 10 dms.)	cwt.	—	10.00
SOAC-KL (min. 10 dms.)	cwt.	—	10.00

ANTI-COAGULANTS

Anhydrous Ammonia (l.c.l.)	lb.	.17	.21
National (cyl., dlvd.)	lb.	.16	.20
Aqua Ammonia (l.c.l., dms.)	lb.	.0285	.0325
M.B.M. (l.c.l.)	lb.	—	.35

ANTI-FOAMING AGENTS

Aero Anti Foam H	lb.	—	.12
Regular	lb.	—	.08½
D.C. Antifoam A	lb.	6.68	7.30

ANTI-OXIDANTS

Agerite Alba	lb.	2.20	2.30
Gel	lb.	.58	.60
Hipar	lb.	.82	.84
H. P.	lb.	.61	.63
Powder	lb.	.46	.48
Resin	lb.	.63	.65
Resin D	lb.	.46	.48
Stalite	lb.	.46	.48
White	lb.	1.40	1.50
Akroflex C	lb.	.61	.63
Aminox	lb.	.46	.48
Antox	lb.	.54	.56
Aranox	lb.	—	2.80
Benzoquinone	lb.	1.50	1.75
Betanox Special	lb.	.68	.70
B-L-E	lb.	.45	.48
Carvacrol	lb.	—	.85
Chlorcarvacrol	lb.	—	2.45
Eugenol C-95%	lb.	—	1.28
Flectol H	lb.	.46	.53
Flexamine	lb.	.61	.63
Gallic Acid, Tech.	lb.	1.10	1.23
USP or NF	lb.	1.27	1.40
Hydroquinone	lb.	.90	.90
Monomethylparaminophenol Sulfate	lb.	2.40	2.90
Neozone Standard	lb.	.66	.68
A	lb.	.48	.50
C	lb.	.52	.54
D	lb.	.46	.48
DL	lb.	.48	.50

BROCKTON CUTTING DIES

Meticulous workmanship has been a tradition at Brockton Cutting Die for three generations. That's why rubber manufacturers turn to us for quality dies of all kinds . . . for dies that really retain their cutting edge. Our experience and facilities enable us to turn out a cutting die for every type of service.

Send your blueprint today for prompt quotation.

BROCKTON CUTTING DIE & MACHINE CO. INC.
CUTTING AND PERFORATING DIES

AVON, MASS.

TIRE MOLDS
SPECIAL MACHINERY
TEAR TEST EQUIPMENT

☆

Fair Prices
Reliable Delivery
Good Workmanship

☆

Your Inquiries are Solicited

THE AKRON EQUIPMENT CO.
AKRON 9, OHIO

FOR RUBBER COMPOUNDING

Synvarite RC Resins

1. Compatible with Buna N and GR-S types of rubber
2. Can also be used advantageously with Natural Rubber and Neoprene
3. Improves processing and molding
4. Improves the following:
   - Hardness
   - Chemical Resistance
   - Toughness
   - Abrasion
   - Heat Resistance
   - Mechanical Properties

Also

1. SYNVARITE RC Resins and Solutions for Rubber Cements and Adhesives
   - Excellent Solvent Release
2. Liquid Resins, SYNVAROL AND SYNVAREN, compatible with Synthetic and Natural Latices for Cements and Adhesives

Manufacturing Phenolic, Urea and Resorcinol Resins for all Industries since 1939

SYNVAR RESINS

SYNVAR CORPORATION

WILMINGTON 99, DELAWARE

ANTI-OXIDANTS (Cont'd)

Oxidex	lb.	—	3.40
Parazone	lb.	—	.75
PDA-10	lb.	.36	.38
PDA-20	lb.	.36	.38
Perflectol	lb.	.61	.68
Permalux	lb.	—	1.65
Pyrogallic Acid, Resublimed.	lb.	2.60	2.65
USP Crystals	lb.	2.10	2.15
Resorcin, Tech. (dlvd.)	lb.	—	.64
Santoflex B	lb.	.46	.53
BX	lb.	.57	.64
Santovar-A	lb.	1.30	1.37
Santowhite (crystals)	lb.	1.65	1.72
Santowhite MK	lb.	1.40	1.52
MKS	lb.	1.25	1.37
S.C.R. (tons)	lb.	.32	.34
Solux	lb.	—	2.15
Stabilite (tons)	lb.	—	.46
Alba (tons)	lb.	—	.69
L (tons)	lb.	—	.48
Stabilizer No. 1	lb.	—	1.65
Stabilizer No. 320	lb.	—	.80
Tannic Acid, Tech.	lb.	.70	.79
Thermoflex A	lb.	.82	.84
Thymol	lb.	—	2.50
V-G-B	lb.	.55	.57

ANTI-SCORCHING AGENTS

Armeen HT	lb.	.46	.54
Benzoic Acid—Tech.	lb.	—	.43
Good-rite Vultrol	lb.	.55	.57
Retarder PD	lb.	—	.36
Retarder W	lb.	—	.43
Sodium Acetate 60-62% Crystals	lb.	—	.06

ANTISEPTICS AND GERMICIDES

Arquad S	lb.	.24	.27
Formaldehyde (barrels)	lb.	—	.062
G-4 (bbls.)	lb.	.95	2.75
G-11	lb.	3.50	5.50
Methyl Para Hydroxy Benzoate	lb.	—	2.10
Nuodex 100 S.S. (dlvd.)	lb.	—	1.05
Nuodex 100 W.D. (dlvd.)	lb.	—	1.20
Nuodex Zinc 8% (dms.) (dlvd.)	lb.	—	.2125
Ortho Cresol (26°-27°)	lb.	—	.18
Retarder D	lb.	.68	.76
Soligen Drier—Copper 8% (drums)	lb.	—	.22½
Zinc 8% (dms.)	lb.	—	.21¼
Vancide	lb.	—	.80

AROMATICS (DEODORANTS)

Bouquet 149	lb.	—	3.00
Coumarin	lb.	—	2.75
Curodex 19	lb.	—	4.75
188	lb.	—	5.75
198	lb.	—	6.75
D-6 Masking Perfume	lb.	—	1.35
Deodorant 65	lb.	—	1.00
Deodorant L-37	lb.	2.00	2.40
L-44	lb.	2.50	2.90
N.L.T.X.	lb.	1.85	2.15
General Deodorant 18301	lb.	—	2.40
Latex Perfume 5	lb.	—	3.25
6	lb.	—	7.50
9	lb.	—	.65
Naugaromes (dms.)	lb.	1.50	3.00
Neutroleum Delta	lb.	—	2.40
Gamma	lb.	—	3.40
Parador A	lb.	1.75	2.25
B	lb.	.70	1.00
C	lb.	2.75	3.25
D	lb.	1.50	2.00
E	lb.	.25	.55
F	lb.	—	.47
I	lb.	—	2.00
K	lb.	—	.43
GD 5280	lb.	—	2.50
GD 5348	lb.	1.90	3.25
Perfume Oil Bouquet Vanilla M	lb.	2.40	2.75
Rodo No. 0	lb.	4.00	4.50
No. 10	lb.	5.00	5.50
Rubbarome (dms.)	lb.	1.05	3.80
Rubber Perfume 12	lb.	—	1.90
Russian Leather 7	lb.	—	4.10
Vanillin	lb.	3.00	3.15

BLOWING AGENTS

Ammonium Bicarbonate (dlvd.)	lb.	.0725	.1075
Blowing Agent CP-975	lb.	—	.35
Sodium Bicarbonate, U.S.P. (e.l., bags)	cwt.	—	1.85
Sponge Paste	lb.	—	.20
Unicel	lb.	—	.60
ND	lb.	—	1.50
S	lb.	—	.25
Urea	lb.	.0425	.0475

BONDING AGENTS

Durez 12987	lb.	.48	.53
Interlake Resin No. 4162	lb.	—	1.50
MDI	lb.	7.00	7.75
50	lb.	3.50	4.00
Pliobond 20	gal.	2.75	4.00
30	gal.	3.45	4.70
Reanite	gal.	6.75	7.25
Rex Compounds	gal.	1.30	2.85
Ty-Ply Q (and S)	gal.	6.75	8.00

COAGULANTS

Acetic Acid—56% (bbls.)	cwt.	8.11	8.61
Glacial—99½% (bbls.)	cwt.	14.05	14.55
Calcium Nitrate, Tech.., Crystals	lb.	.12½	.15
Hydroxyacetic Acid—70% (dms.)	lb.	—	.084
Zinc Nitrate, Tech.	lb.	—	.21½

COLORING AGENTS

Black

Carbon Black—See *Reinforcing Agents*			
Aquablak B (also M, R)	lb.	.0775	.0875
Aquablak S	lb.	.08½	.09
Black Shield 4-35 (dms.)	lb.	—	.0825
Lampblack No. 10	lb.	.06	.09
Mapico Black Iron Oxide (50 lb. bags)	lb.	.1075	.1100
Raven Black Pure Iron Oxide	cwt.	10.75	11.00

Blue

Blue GD, Dispersed	lb.	—	3.95
Paste	lb.	—	1.80
Blue YD, Dispersed	lb.	—	2.50
Milori Blue 11840 (dlvd.)	lb.	—	.45
Monastral Fast Blue CPL.	lb.	—	1.54
PCD, Dispersed	lb.	—	2.50
PCD Paste	lb.	—	.75
Ramapo Blue	lb.	3.40	3.45
Rubber Blue X-1999	lb.	—	1.00
Stan-Tone Blue	lb.	1.40	4.00
Ultramarine	lb.	.14	.30
Vansul Blue M.B.	lb.	1.00	2.30
Victoria Blue BP-262-D	lb.	2.25	2.30

Brown

Brown Iron Oxide	lb.	.1075	.12
Mapico Brown (50 lb. bags)	lb.	—	.1250

Green

Filo Green D-700 (and D-705)	lb.	—	.30
Green Chromium Oxide, Pure	cwt.	33.00	40.00
Green Chromium Oxide, Pure, Hydrated	cwt.	75.00	100.00
Green FD, Dispersed	lb.	—	1.50
Monastral Fast Green GSD, Dispersed	lb.	—	3.20
GSD Paste	lb.	—	1.10
GSL	lb.	—	1.71
Permansa Green CP-594	lb.	—	1.35
Pigment Green B	lb.	—	1.35
GL-652D	lb.	.88	.93
Ramapo Green	lb.	—	4.00
Rubber Green X-1292	lb.	—	1.00
Stan-Tone Green	lb.	1.50	3.30
Utility Green	lb.	—	.30
Vansul Green M.B.	lb.	.85	2.25

Maroon

Stan-Tone Maroon	lb.	3.00	3.05
Vansul Maroon M.B.	lb.	1.05	2.65

Orange

Molybdate Orange	lb.	—	.43
Orange FD, Dispersed	lb.	—	2.75
Rubber Orange X-2065	lb.	—	2.60
Stan-Tone Orange	lb.	1.65	2.25
Vansul Orange M.B.	lb.	2.00	2.75

Red

Antimony Trisulfide	lb.	.55	.68
R. M. P. Sulfur Free.	lb.	.63	.68
R. M. P. No. 3	lb.	.53	.60
Cadmium Red	lb.	.95	1.25
Cadmolith Red (bbls.)	lb.	1.20	1.45
Graphic Red (dlvd.)	lb.	—	.80
Indian Red, American, Pure	cwt.	11.50	11.75
Doxco (English)	cwt.	17.00	18.00
Mapico Red 297 (50 lb. bags)	lb.	.1150	.1175
Oximony Iron Oxide	lb.	—	.09
Red Iron Oxide, Light	cwt.	11.50	11.75
Red FBD Dispersed	lb.	—	1.65
2BD, Dispersed	lb.	—	1.65
2BL	lb.	—	1.15
Rubanox Red CP-762 (dlvd.)	lb.	—	1.40
Rubber Red CP-339 (dlvd.)	lb.	—	1.05
Rubber Red RT-364	lb.	—	.75
Rubber Red RT-425	lb.	—	.75
Rubber Red X-1148	lb.	—	.80
Rubbered	lb.	.16	.18
Solfast Red CP-663 (dlvd.)	lb.	—	1.80
CP-787 (dlvd.)	lb.	—	1.30
Stan-Tone Red	lb.	1.10	3.05
Sun Burnt Red	lb.	16.	.18
Vansul Red M.B.	lb.	.80	2.30
Watchung Red	lb.	—	1.80

White—Lithopone

Albalith	lb.	.06¼	.06½
Astrolith	lb.	.06¼	.06⅝
Cryptone No. 19	lb	.07¾	.08
CB No. 21	lbl	.07¾	.08
Eagle	lb.	.06¼	.06½
Permalith	lb.	.06¼	.06⅝
Ponolith	lb.	.06¼	.06⅝
Sunolith	lb.	.06¼	.06⅝

White—Titanium Pigments

Rayox	lb.	.19½	.22½
Ti-Cal	lb.	.07⅜	.08¼
Ti-Pure	lb.	.21½	.22½
Titanox A—all grades (dlvd.)	lb.	.19½	.20½
B-30 (dlvd.)	lb.	.07	.07½
C (dlvd.)	lb.	.06¾	.07¼
RA—all grades (dlvd.)	lb.	.21½	.22½
RC-HT (dlvd.)	lb.	.07½	.08
Unitane O-220	lb.	.195	.205
OR-250	lb.	.215	.225
Zopaque	lb.	.19½	.20½

White—Zinc Oxide (American Process)

AZO-ZZZ 11 (and 22, 33, 44, 55)	lb.	.11¾	.12
Eagle	lb.	.11¾	.12
Horse Head Special	lb.	.11¾	.12
XX Red	lb.	.11¾	.12
XX-505	lb.	.13¼	.13½
Protox 166	lb.	.11¾	.12
St. Joe Black Label	lb.	.11¾	.12
Green Label	lb.	.11¾	.12
Red Label	lb.	.11¾	.12

White—Zinc Oxide (Dispersed)

Dispersed Zinc Oxide	lb.	—	13

White—Zinc Oxide (French Process)

AZO-ZZZ 66	lb.	.14	.14½
Eagle Green Seal	lb.	.13¼	.14
Eagle Red Seal	lb.	.13¼	.13½
Eagle White Seal	lb.	.14¼	.14½
Florence Green Seal	lb.	.13½	.13¾
Red Seal	lb.	.13	.13¼
White Seal	lb.	.14	.14½
Kadox 25	lb.	.14	.14½
Kadox 15, 17 and 72	lb.	.11¾	.12
U. S. P. 12	lb.	.13	.15¼

White—Zinc Sulfide

Cryptone ZS-800	lb.	.12¼	.12½

Yellow

Anchor Brand Pure Iron Oxide	cwt.	9.00	9.25
Cadmolith Yellow (bbls.)	lb.	—	.95
Chrome Yellow	lb.	—	.30¼
Chrome Yellow 12310	lb.	—	.34
Ferrox	cwt.	7.50	8.50
Mapico Yellow (50 lb. bags)	lb.	.0900	.0925
Rubber Yellow X-1940	lb.	—	1.60
Stan-Tone Yellow	lb.	1.20	1.75
Toluidine Yellow	lb.	—	1.70
YL-556-D	lb.	—	.82
Oximony Iron Oxide	lb.	—	.06¾
Vansul Yellow M.B.	lb.	.90	1.00
Yellow GD, Dispersed	lb.	—	1.85
GL	lb.	—	1.35
HV Paste	lb.	—	.34
Zinc Yellow	lb.	—	.24

DISPERSING AGENTS

Agchem SA-19	lb.	—	.30
SA-20	lb.	—	.70
Aquasol AR 90%	lb.	—	.24¾
Armeen 18	lb.	.52	.60
Beaconol 52	lb.	.60	.75
Darvan No. 1 (and No. 2)	lb.	.21	.30
Daxad 11 (21, 23)	lb.	.08	.35
Dilex	lb.	—	.32
Dispersaid	lb.	1.25	1.35
Halloid	lb.	.03¾	.09½
HornKem No. 1	gal.	—	1.60
No. 3G	gal.	—	1.75
No. 12	lb.	—	.17
Lomar PW	lb.	.16	.18
Marasperse CB	lb.	.11½	.15
N	lb.	.09	.10
Rubbex	lb.	—	.27½
Stan-Chem BQC	lb.	.12¼	.17¼
1067	lb.	—	.13½
1471	lb.	.1687	.2187
2251	lb.	.12¼	.17¼
Trenamine D-25	lb.	.32½	.36
D-100	lb.	.48	.51
Triethanolamine (drums) (dlvd.)	lb.	.21½	.22½
Triton R-100	lb.	.15½	.26
Yelkin TT	lb.	—	.22
Zinsper	lb.	—	.15

EXTENDERS

Advagum 1098	ib.	—	.65
Bunaweid Polymer No. 780.	lb.	—	.22
No. 5514	lb.	—	.30
D-92 (and D-93) (dms.)	lb.	—	.12
Extender 600	lb.	—	.1790
PR-162 Latex (dms.)	gal.	1.00	1.60
Synprolac	lb.	—	.19
Synprowax	lb.	.16	.19
Vistanex	lb.	—	.32

FILLERS (Inert and Reinforcing)

Abrasives

Carbonite	lb.	.15	.95
Lionite	lb.	.09¾	.90
Pumice	lb.	.03	.05
Aluminum Hydrate	lb.	—	.17

Marbon "S" and "S-1"

non-dusting, non-staining

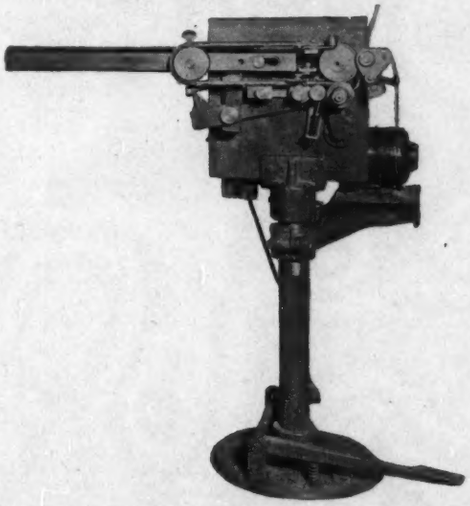
SYNTHETIC RESINS

for high quality, low gravity, light colored stocks with 70 to 100 SHORE 'A' HARDNESS

ASK FOR FURTHER DETAILS ON THESE VERSATILE PRODUCTS

MARBON CORPORATION
GARY, INDIANA

UTILITY FAN OR V-BELT COVERING MACHINE FOR VARIOUS SIZES AND CROSS-SECTION BELTS



UTILITY MANUFACTURING COMPANY

Cudahy, Wisconsin

Cable Address: UTILITY-MILWAUKEE

Long Distance Phone Call

MILWAUKEE—SHERIDAN 4-7020

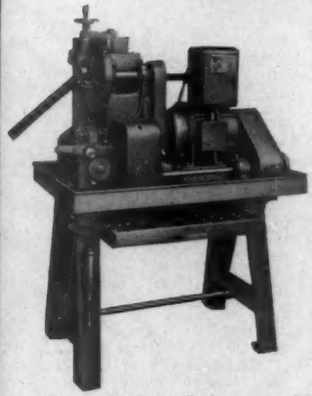
FOR IMMEDIATE DELIVERY

TANKCAR - CARLOAD - L.C.L.

Testworth Laboratories, INC.

407 S. DEARBORN, CHICAGO 5, ILLINOIS

For Immediate Shipment..
Thropp Automatic



Washer Cutters

THE Thropp Automatic Washer Cutter does not require mandrels. It will cut washers for hose connections, bottle stoppers, plumbers' washers, synthetics, uncured stock for molds, etc. A single unskilled operator can run one or more of these machines at the same time. Size of Cuts: 1/4" in diameter to 1 3/4" inclusive, and from 3/32" to 1 1/2" in length.

Capacity: 100 cuts per minute on long lengths and big diameters; and 200 cuts per minute on narrow widths and small diameters.

Shipment: Shipment can be made from stock on a limited number of units complete with motor and control, wired and ready for installation.

- *West Coast Rep.:* H. M. Royal, Inc., Los Angeles, Cal.
- *Export Agent:* Steinhardter & Nordlinger, 105 Hudson St., N.Y.

THROPP

WM. R. THROPP & SONS CO. Trenton, N.J.

FILLERS (Cont'd)

Aluminum Silicate			
Silical	ton	37.00	- 55.00
Marter White	ton	18.50	- 30.00
Barium Carbonate (l.c.l.)	ton	72.50	- 90.00
Barytes			
No. 1 Floated, White	ton	34.85	- 49.65
No. 2 Floated, Unbleached	ton	—	- 32.85
No. 22 Barytes (c.l.)	ton	—	- 18.37
Foam A	ton	—	- 34.85
Bentonite (c.l.)	ton	—	- 11.50
SPV Volclay (c.l.)	ton	—	- 11.50
Blanc Fixe	ton	72.50	-120.00
Calcium Carbonate			
Atomite (c.l.)	ton	—	- 30.00
B.I. White No. 1 (c.l.)	ton	—	- 7.50
B.I. White No. 2 (c.l.)	ton	—	- 7.00
B.I. White No. 390 (c.l.)	ton	—	- 5.75
Blue-Star XX	ton	—	- 15.00
Calcene T	ton	45.00	- 55.00
Camelwite	ton	—	- 30.00
Kalite (c.l.)	ton	—	- 40.00
Lesamite (c.l.)	ton	—	- 27.50
Lim-Cal (c.l.)	ton	—	- 12.50
Millical (c.l.)	ton	—	- 27.50
Multifex	ton	—	-105.00
Sierracal	ton	15.00	- 18.50
Super Multifex	ton	—	-145.00
Suspenso (c.l.)	ton	—	- 22.00
Swansdown (c.l.)	ton	—	- 20.00
Witcarb R (c.l.)	ton	—	-105.00
R-12 (c.l.)	ton	40.00	- 60.00
York White	ton	—	- 9.00
Calcium Silicate			
Silene EF	ton	110.00	-120.00
Calcium Sulfate, Anhydrous			
Snow White Filler	ton	—	- 18.00
Calcium Sulfate, Hydrous			
Crysta-Cal (c.l.)	ton	—	- 12.50
Terra Alba No. 1	ton	12.00	- 14.40
Chalk Whiting (l.c.l.)	lb.	.0150	- .0175
Recco Paris Whiting	ton	—	- 28.00
Clay			
Alsikte (c.l.)	ton	14.00	- 22.50
Alsite (c.l.)	ton	—	- 14.00
Aluminum Flake	ton	16.50	- 36.00
A.S.P. No. 1 (c.l.)	ton	—	- 35.00
No. 11 (c.l.)	ton	—	- 40.00
Buca (c.l.)	ton	—	- 45.00
Burgess No. 20	ton	—	- 33.00
No. 30	ton	—	- 35.00
Burgess Iceberg	ton	—	- 50.00
Catalpo (c.l.)	ton	—	- 35.00
Champion	ton	—	- 14.00
C.S.D. (c.l.)	ton	—	- 13.00
Crown	ton	—	- 14.00
Dixie (c.l.)	ton	—	- 14.00
Hi-White R	ton	15.00	- 33.00
Hydratex R	ton	30.00	- 50.00
Kaolloid Clay (c.l.)	ton	—	- 10.50
Markham (c.l.)	ton	14.00	- 33.80
McNamee (c.l.)	ton	—	- 13.50
Oldham (c.l.)	ton	—	- 13.00
Paragon	ton	13.50	- 34.50
Pigment 33	ton	—	- 37.00
Recco (c.l.)	ton	—	- 14.00
Stellar-R	ton	—	- 50.00
Suprex	ton	14.00	- 35.00
Upton	ton	19.50	- 21.50
Whitetex (c.l.)	ton	—	- 50.00
Witco No. 1 (c.l.)	ton	13.00	- 33.00
No. 2 (c.l.)	ton	13.00	- 33.00
Diatomaceous Earth	ton	30.00	- 50.00
Kaylorite (c.l.)	ton	—	- 30.00
Dolomite (c.l.)	ton	11.00	- 12.00
Flock			
Cotton, white and colored	lb.	.10	- .20
Filfloc F 40-9000	lb.	—	- .16
Filfloc F 6000	lb.	—	- .22
Rayon, bleached or dyed	lb.	.81	- 1.50
Rayon, grey	lb.	—	- .18
Rayon, pink	lb.	—	- .14
Solka-Floc (l.c.l.)	lb.	.05	- .15
Wool, bleached or dyed	lb.	.70	- 1.00
Glue, Bone (dlvd.)	lb.	.16½	- .18½
Graphite	lb.	.05	- .20
Ground Glass (l.c.l.)	lb.	.04	- .06
Leather, Shredded	lb.	.05	- .17
Lignin	lb.	.03	- .06
Indulin	lb.	—	- .09
Limestone, Pulverized	ton	3.25	- 10.00
Micro Velva	ton	45.00	- 47.00
Velvet Filler, Regular	ton	20.00	- 22.00
Magnesium Carbonate	lb.	.09	- .10
K & M Clearcarb	lb.	.1175	- .1225
Magnesium Oxide	lb.	.05	- .06
Magnesium Silicate	ton	18.00	- 35.00
Airex	ton	22.50	- 23.50
Asbestol	ton	20.00	- 22.00
Blue Star Talc	ton	—	- 23.00
L.S. Silver	ton	23.50	- 25.50
Sierra White	ton	21.25	- 23.25
Mica	lb.	.01¼	- .07¾
Concord	lb.	.0675	- .0750
Micro-Mica	lb.	.06¾	- .07½
Mineralite (c.l.)	ton	25.00	- 40.00
Silversheen	lb.	.06¾	- .07½
Triple A Mica (c.l.)	ton	—	- 25.00
Vermiculite	lb.	.075	- .085
Wet Ground Biotite Mica	lb.	.05½	- .06¼
Wet Ground Mica No. 160	lb.	.06¾	- .07½
Mineral Black			
Keystone 126	ton	15.00	- 20.00

FILLERS (Cont'd)

Pyrophyllite			
Pyrax A (c.l.)	ton	—	- 12.50
WA (c.l.)	ton	—	- 15.00
Silica	ton	16.00	- 27.00
Blue Star	ton	—	- 21.50
Slate, Powdered (l.c.l.)	ton	15.00	- 20.00
Talc, Domestic	ton	9.00	- 20.00
Walnut Shell Flour	ton	38.00	- 80.00
Whiting, Commercial	ton	—	- 12.00
Cameline (c.l.)	ton	8.50	- 10.00
C-C-O White	ton	—	- 17.00
Keystone (c.l.)	ton	—	- 16.00
Rambo No. 1 White	ton	—	- 6.50
No. 6 White	ton	—	- 9.00
Snowflake (c.l.)	ton	—	- 18.00
Veroc (c.l.)	ton	—	- 6.50
Welco (c.l.)	ton	—	- 6.50
York White R (c.l.)	ton	—	- 8.00
Wood Flour	ton	20.00	- 62.18

FINISHING MATERIALS, SURFACE

Beaco Finishes	gal.	1.05	- 1.35
Black Out	gal.	4.50	- 8.00
Shellac, Orange Gum	lb.	.65	- .85
VanWax	gal.	1.25	- 1.30

FLAME RETARDANTS

Celluflux	lb.	.36½	- .38½
Chlorinated Paraffin	lb.	.10	- .25
Halowax	lb.	.24	- .39
Zinc Borate 3167	lb.	.13½	- .14
Zyrox	lb.	.65	- .79

LUBRICANTS, MOLD

Aquadag	lb.	3.15	- 3.45
Aquarex BBX Conc.	lb.	—	- .78
D	lb.	—	- .76
L Paste	lb.	—	- .85
MDL Paste	lb.	—	- .30
Akro Gel	lb.	—	- .165
Borax, Granular (l.c.l.)	ton	70.00	- 80.00
Colite Concentrate (dms.)	gal.	—	- .90
Concentrex	lb.	—	- .25
D.C. 7 Compound	lb.	6.20	- 6.80
D.C. Emulsion No. 35	lb.	2.20	- 3.50
D.C. Mold Release Fluid	lb.	5.20	- 6.00
Dipex	lb.	.14	- .18
Dri-Lube	lb.	—	- .22
Erlen Mold Lubricant	gal.	1.25	- 1.50
Glydag	lb.	1.30	- 2.00
Hawkeye Flake (dlvd.)	lb.	—	- .15
Kokobace	lb.	—	- .12
Latex-Lube (dlvd.)	lb.	—	- .20½
Liqui-Lube (dlvd.)	lb.	—	- .15¾
Lubrex	lb.	.25	- .30
Migralube	lb.	—	- .37
Moldeze No. 1	gal.	—	- 36.00
No. 3	gal.	—	- 7.50
Mold Lubricant No. 72 Conc.	gal.	2.50	- 5.50
No. 735	gal.	1.26	- 2.75
Mold-Slick	lb.	.202	- .215
Orvus WA Paste (dms.)	lb.	—	- .25
Prodag	lb.	.25	- .38
Purity Flake (dlvd.)	lb.	—	- .17
Redotex Flakes (dlvd.)	lb.	.14⅞	- .15½
Powder (dlvd.)	lb.	.15⅜	- .16
Rubber-Flo	gal.	—	- 1.15
Rubber-Glo	gal.	—	- .94
Rusco Mold Paste	lb.	—	- .25
Sericite (l.c.l.)	ton	65.00	- 75.00
Thermalube	lb.	—	- .11
Ulco Mold Soap	lb.	.16	- .29
Werkrite Flakes (dlvd.)	lb.	.09⅞	- .10½
Powder (dlvd.)	lb.	.10¾	- .11¼

LUBRICANTS, RUBBER

Extrud-o-Lube	gal.	—	- 1.57
Propylene Stearate (drums)	lb.	—	- .40

LUBRICANTS, RUBBER SURFACE

Barium Stearate	lb.	.48	- .49
Calcium Stearate	lb.	.39	- .40
Glycerized Lubricant	gal.	—	- 1.25
Polyethylene Glycol	lb.	.25	- .26
Rexanol	lb.	—	- .13
Separex	lb.	—	- .15
Slab-Dip	lb.	—	- .15
Wet-Zinc	lb.	—	- .25
Zinc Stearate	lb.	.40	- .43

MOLD CLEANERS

Actusol (dlvd.)	gal.	—	- 1.45
Metso 99	cwt.	3.75	- 5.40
Granular	cwt.	3.25	- 4.75
Rubber-Sol	gal.	—	- 2.75
Shelblast	ton	80.00	-140.00
Sprex A.C. (dlvd.)	lb.	—	- .15½

PEPTIZING AGENTS

Peptizer P-12	lb.	.84	- .90
RPA 2	lb.	—	- .65
3	lb.	—	- .46
5	lb.	—	- .57

PLASTICIZERS & SOFTENERS

AA (drums)	lb.	—	- .22
Acto 500	lb.	—	- .09
Adipol BCA (dms.)	lb.	.44½	- .45
2EH	lb.	.47	- .47½
10A	lb.	.47	- .47½

PLASTICIZERS & SOFTENERS (Cont'd)

Amalgamator Z-4	lb.	—	- .30
American Pine Tar	gal.	.34½	- .43½
Arneel	lb.	.29	- .34
Arolene 1980 (c.l.)	lb.	—	- .10
2286	lb.	—	- .25
Bardol	lb.	.02¾	- .03¾
B	lb.	.05½	- .05¾
Bayol D	gal.	—	- .382
F	gal.	—	- .52
Beeswax, Refined & Bleached	lb.	.64	- .74
Yellow Refined	lb.	.63½	- .68
Bondogen	lb.	.55	- .60
B.R.C. No. 20	lb.	.0125	- .0135
B.R.H. 2	lb.	.02	- .029
BRS 700	lb.	.0175	- .026
B.R.T. 3	lb.	.024	- .025
4	lb.	.0225	- .0235
7	lb.	.0265	- .0275
B.R.V.	lb.	.0325	- .04
Bunarex Resins	lb.	.06	- .0750
Bunatak M	lb.	—	- .20
O	lb.	—	- .18
R	lb.	—	- .14
U	lb.	—	- .15
No. 21	lb.	—	- .08
No. 90	lb.	—	- .08
No. 865	lb.	—	- .17
No. 1080	lb.	—	- .09½
Burgundy Pitch	lb.	.1026	- .1050
Butac	lb.	.11	- .12
Butoxyethyl Diglycol Carbonate	lb.	.40	- .41
Butyl Benzyl Sebacate	lb.	—	- .575
Butyl Carbitol Perlargonate (dms.)	lb.	—	- .640
Butyl Cellosolve Perlargonate (dms.)	lb.	—	- .68
Butyl Palmitate	lb.	—	- .26½
Butyl Roleate	lb.	.176	- .18
Butyl Stearate	lb.	—	- .405
BWH-1	lb.	—	- .14
Califlux 510, 550	lb.	.025	- .0325
G.P.	lb.	.0125	- .02
R-100	lb.	.05	- .0575
Campol (t.c.)	ton	—	- 42.00
Candelilla Wax Prime	lb.	.67	- .75
Capryl Benzyl Sebacate	lb.	—	- .6325
Carbonex	lb.	.0325	- .0375
S Flakes	lb.	.0475	- .0525
S Plastic	lb.	.046	- .051
644	lb.	.0375	- .04
Carbowax 4000 (drums)	lb.	.31	- .32
Cardolite 615	lb.	.37	- .40
816	lb.	.25½	- .28½
5858	lb.	.42	- .46
Carnauba Wax, Crude	lb.	.73	- .82
Refined	lb.	.81	- .85
Substitute	lb.	.45	- 1.08
Yellow	lb.	1.15	- 1.20
Celluflex	lb.	.36½	- .38½
Ceresine Wax	lb.	.14	- .26
Contogum	lb.	.06¾	- .10¼
Cumar Resins	lb.	.05½	- .14½
D.C. 200 Fluid	lb.	5.20	- 6.00
D.B.M.	lb.	—	- .30
Degras, Common	lb.	.12	- .14
Diamylphenol (l.c.l., dms.)	lb.	—	- .28
Dibenzyl Sebacate	lb.	—	- .6875
Dibutoxethyl Sebacate	lb.	—	- .5634
Dibutyl Phthalate	lb.	—	- .32
Dibutyl Sebacate—Tech.	lb.	—	- .545
C.P.	lb.	—	- .565
Dicapryl Adipate	lb.	—	- .40
Dicapryl Phthalate	lb.	—	- .42
Dicapryl Sebacate	lb.	—	- .57
Di-Carbitol Phthalate (dms.)	lb.	.43¾	- .44
Dicyclohexyl Phthalate	lb.	—	- .43
Dielex	lb.	.0625	- .0650
Diethyl Phthalate (t.c.)	lb.	—	- .32
Dihexyl Adipate	lb.	—	- .36
Dihexyl Phthalate	lb.	—	- .31
Dihexyl Sebacate	lb.	—	- .4475
Di Isobutyl Azelate (dms.)	lb.	—	- .715
Dimethyl Phthalate	lb.	—	- .22
Dimethyl Sebacate	lb.	—	- .71
Dinopol (dms.)	lb.	.523	- .533
Dioctyl Phthalate (dms.)	lb.	.44½	- .45½
D.I.O.P. (dms.)	lb.	.44½	- .45½
Dipolymer Oil	gal.	.33	- .38
Dispersing Oil No. 10	lb.	.0525	- .055
Dutrex A (B, 5, 6)	lb.	.02½	- .03¾
15	gal.	.10	- .189
20, 21, 25	lb.	—	- .03
ELA	lb.	—	- .80
Estac	lb.	—	- .16
Ethox (dms.)	lb.	.44½	- .45
Flexol B-400	lb.	.28½	- .29
DOP	lb.	.42½	- .43½
TOF	lb.	.48½	- .49
3GH	lb.	.43½	- .44
3GO	lb.	.53	- .53½
4GO	lb.	.37½	- .38
8N8	lb.	.39	- .39½
Galex W-100	lb.	.13½	- .15
G. B. Light Process Oil	lb.	.025	- .0325
H-70	lb.	.56¾	- .64½
Hercoyln (dlvd.)	lb.	.1675	- .1725
Herron-H.T.	gal.	.2400	- .2700
Herron-Plas	lb.	.0350	- .0375
Herron-Wax	lb.	.0500	- .0550
HT-300	lb.	.45¾	- .53
Indonex 632½ (633½, 634½, 638½)	gal.	.1200	- .1700
Indopol H-300 (bbls.)	gal.	1.28	- 1.32
JMH	lb.	—	- .85

LITTLEJOHN & CO., Inc.

120 WALL STREET
NEW YORK 5, N. Y.

CRUDE & SYNTHETIC
RUBBER

NATURAL & SYNTHETIC
LATEX

▼

Balata—Gutta Percha
Pontianak—Gutta Siak

All Grades of
Brazilian and Far Eastern
Chewing Gum Raw Materials

THE SOUTH ASIA CORP.

Importers-Dealers Crude Rubber
11 BROADWAY, NEW YORK, N. Y.
Digby 4-2050

BROADSTREET BANK BLDG.
TRENTON 8, NEW JERSEY
TRenton 2-8519

•

CRUDE RUBBER

Synthetic Rubber
Liquid Latex

•

E. P. LAMBERT CO.

FIRST NATIONAL TOWER
AKRON 8, OHIO
Hemlock 2188

FOR DEPENDABLE SERVICE
ON YOUR

RUBBER REQUIREMENTS

1903-1949 BAIRD

BAIRD RUBBER
AND TRADING COMPANY
233 Broadway, New York 7, N. Y.
WOrth 4-1460

RUBBER

CRUDE AND
SYNTHETIC

★

Sole Distributor
DUNLOP CENTRIFUGED LATEX
North • South • Central • America

Sole U.S. Distributor
SYNTHETIC LATICES for
POLYMER CORPORATION LTD.
Sarnia, Ont., Canada

★

AKRON
BOSTON
LOS ANGELES
TORONTO

CHARLES T. WILSON CO., INC.
120 WALL ST., NEW YORK 5, N. Y.

★

PLASTICIZERS & SOFTENERS (Cont'd)

Kapsol	lb.	—	.42
KP 23 (dms.)	lb.	.39½	.40
70 (dms.)	lb.	.41	.41½
120 (dms.)	lb.	—	.40
140 (dms.)	lb.	.49½	.50
150 (dms.)	lb.	.41½	.42
201	lb.	—	.43
Kronisol (drums)	lb.	.41	.41½
Kronitex (drums)	lb.	.38	.38½
Lanolin, Tech. Anhydrous	lb.	.16	.18
Lead Oleate	lb.	.41½	.42
Lindol	lb.	.37	.38½
2-Mercaptoethanol (drums)	lb.	—	.7-
Methox (dms.)	lb.	.41	.41½
Methyl Laurate	lb.	.25	.27
Methyl Oleate	lb.	—	.7-
Methyl Stearate	lb.	—	.70
Monoplex DBS	lb.	.58	.59
Monoplex DCP	lb.	.40½	.41
Monoplex DOS	lb.	.69	.70
5 (dms.)	lb.	.70	.71
11 (dms.)	lb.	.50	.51
16 (dms.)	lb.	.45	.46
Montan Substitute No. 506	lb.	.32	.33
Montan Wax, Crude	lb.	.30	.35
Montan Wax (c.l.)	lb.	.52	.55
Monty Wax	lb.	—	.35
Natac	lb.	.1050	.1150
Neolene 210 (t.c.)	lb.	—	.16
212 (t.c.)	lb.	—	.14
220 (t.c.)	lb.	—	.15
Nerium	lb.	—	.09
Nevillac Resins (dms.)	lb.	.23	.45
Neville Resins (dms.)	lb.	.10½	.15½
Nevindene Resins (dms.)	lb.	.12½	.15½
Nevinol (dms.)	lb.	—	.17
Nevoll	lb.	.0325	.0425
Nevtex 10 (dms.)	lb.	—	.10½
Nuba 1 (and 2) (dms.)	lb.	—	.04
3X (dms.)	lb.	—	.065
15 (and 30) Oil (dms.)	lb.	—	.24
781 Oil (dms.)	lb.	—	.27
No. 480 Oil Proof Resin	lb.	—	.15
Ohopex Q10 (dms.)	lb.	.44½	.45½
Opalwax	lb.	.37	.38
Ortho-Nitrobiphenyl	lb.	.06	.11
Ozokerite Wax No. 64			
White	lb.	.31	.32
Yellow	lb.	.25	.26
P-1 (and 4, 6, 8, 20)	lb.	.29½	.33½
P-75	lb.	.66	.72
Pale 4 (and 1000)	lb.	—	.24
Palm Oil	lb.	—	.11
Paradene Resins (dms.)	lb.	.065	.075
Para Flux (dms.)	gal.	.1875	.197½
2016 (l.c.l.)	gal.	.22	.23
Para Lube (l.c.l.)	lb.	.046	.048
Paraplex G-25	lb.	.76	.77
G-40	lb.	.43	.44
G-50	lb.	.39½	.40½
Parmo	lb.	.06	.13½
Pentaphen No. 114 (l.c.l., bags)	lb.	—	.27
Pepton 22	lb.	.72	.75
PG-16 (drums)	lb.	—	.23½
Philplast No. 1	gal.	.18	.35
No. 2	gal.	.13	.35
Picco 10 (and 25)	lb.	—	.12
75 (and 100)	lb.	—	.11½
Rubber Resin 100	lb.	.13¼	.13¾
S.O.S.	gal.	.29	.34
Piccocizer 30	lb.	.05½	.06
Piccolastic A (and B, C, D, E)	lb.	.22	.22½
F	lb.	.139	.144
Piccolyte S Resins	lb.	.1500	.157½
Piccolyte WW Resins	lb.	.45	.47
Piccoumaron Resins	lb.	.06½	.14½
Piccovar	lb.	.12	.12½
Piccovol	lb.	.02½	.04
Pictar	gal.	.25	.30
Plas-Blend 360	lb.	.03	.04
Plastac M	lb.	—	.09¼
Plasticizer No. 50B	lb.	.365	.385
Plasticizer SC	lb.	.49	.52
Plasticizer VA-1	lb.	—	.40
Plasticizer XP-3	lb.	—	.50
Plastoflex 3	lb.	—	.50
50	lb.	—	.38
J-21	lb.	—	.41
Plastogen	lb.	.07¼	.08
Plastolein 9050	lb.	—	.45
9055	lb.	—	.37
9058	lb.	—	.45
9250	lb.	—	.32
9715	lb.	—	.36
Plastolein X-55 (dms.)	lb.	—	.60
X-148 (dms.)	lb.	—	.70
Plastone	lb.	.27	.30
Polymel D	lb.	—	.20
Polymel Liquid	gal.	.12	.17
Polymel Resins	lb.	.029	.05
Process Oil C-255	gal.	—	.22
PT 400 Pine tar (600, 800) (t.c., dms.)	gal.	.34½	.45½
Reogen	lb.	.12½	.12
465 Resin (drums)	lb.	—	.05½
Resin 731-C	cwt.	—	14.75
Resin C	lb.	.02	.027
Resinex	lb.	.03¼	.04
L-4	lb.	.02¼	.03
Ridbo 369 (drums)	lb.	.08	.09
369-F (drums)	lb.	—	.12

PLASTICIZERS & SOFTENERS (Cont'd)

Rosin Oil	gal.	.54	1.20
R.P.A. No. 2	lb.	—	.65
No. 3	lb.	—	.46
No. 5	lb.	—	.37
R.S.O. Softening Oil	lb.	.03	.05
Rubberol	lb.	—	.21½
Rubtar	gal.	—	.40
Santicizer B-16	lb.	.50	.57
E-15	lb.	.47	.54
M-17	lb.	.44	.51
No. 140	lb.	.31	.38
Sealol 42	gal.	—	1.10
Softener No. 20	gal.	.09	.25
S.P.C.	lb.	—	.19½
Stanolind Petrolatum	lb.	.037	.081
Wax	lb.	.25	.30
Staybelite Resin (dms.)	lb.	—	.11
Sunny South Burgundy Pitch	cwt.	7.51	7.96
Sunny South Pine Tar	gal.	.34½	.43½
Sunny South Rosin Oil	gal.	.47	.49
Superla Wax	lb.	.25	.30
Syncera Wax	lb.	.175	.225
Synplasticizer	lb.	—	.10
Syn Tac (c.l.)	gal.	—	.33
Tar, Refined	gal.	.12	.17
K-Tarnel NR (t.c.)	lb.	—	.0851
Terpene A	gal.	—	.65
TP-90B	lb.	—	.65
TP-95	lb.	—	.55
TP98	lb.	—	.50
Triacetin	lb.	.34	.45
Tricresyl Phosphate	lb.	.36½	.38½
Turgum S	lb.	.09½	.10½
Vanadiset A	gal.	.13	.20
Vanadiset B, C, D	lb.	.022	.055
Pulverized	lb.	.064	.09
Solution	gal.	.40	.65
Vistac No. 1	gal.	—	1.32
No. 2	gal.	—	1.66
No. 4	gal.	—	1.80
Witresin—Granular	ton	41.00	43.00
Solid	ton	36.00	38.00

PROCESSING AIDS

Castor Oil. Processed (dms.)	lb.	—	.24
Refined (drums)	lb.	—	.13¾
Castorwax (min. 400 lbs.)	lb.	—	.31
Dutrex 7	lb.	.02½	.03¾
30	gal.	.24	.27
ELA	lb.	—	.80
Heron S.P.O.	lb.	.22	.23
Millrex	lb.	—	.15
Resin No. 510	lb.	.13½	.16½

PROTECTIVE & STABILIZING AGENTS

Acacia	lb.	.12¾	.21
Agchem SA-9 (to SA-12)	lb.	.65	1.02
Alpha Protein	lb.	.19	.23
Aroostocrat	lb.	—	.07½
Carob Bean Flour	lb.	.33	.35
Casein	lb.	.28	.35
Ethylene Diamine 68%	lb.	.57	.58
Karaya Gum	lb.	.20	.50
Prosein	lb.	.0575	.0605
Rex Compound No. 2801	lb.	—	.13
Sodium Alginate	lb.	—	1.50
Stablex B	lb.	—	.95
Tragacanth Flakes	lb.	.60	1.35

RECLAIMING AGENTS

Armeers C	lb.	.50	.58
T	lb.	.42	.50
No. 517 H.B. Oil	gal.	.11½	.16½
535	gal.	.22	.27
C-6 Oil (and 28, 32)	gal.	.33	.38
C-10 Oil	gal.	.25	.30
C-33 Oil	gal.	.20	.25
Caustic Soda—Flake 76% (c.l., drums)	cwt.	—	3.45
Liquid 50% (t.c.)	cwt.	—	2.40
Solid 76% (c.l., dms.)	cwt.	2.50	3.05
Cresylic Acid (99-100%)	gal.	1.55	1.69
D-4	gal.	.23	.28
E-5	gal.	.21	.26
G. B. Reclaiming Oil	gal.	.12	.18
Heavy Aromatic Naphtha (t.c.)	gal.	—	.125
LX-77 Reclaiming Solvent	gal.	.18	.24
LX-572 Reclaiming Oil	gal.	.23	.28
Neo-Fat D-242	lb.	.05½	.07¾
PT 67 Light pine oil	gal.	.60	.70
PT 101 Pine tar oil	gal.	.32	.43
PT 150 Pine solvent	gal.	.44	.45
Q Oil	gal.	.246	.296
Reclaiming Oil 1621	lb.	.03	.04
Reclaiming Oil 3186 (t.c.)	gal.	—	.295
Reclaiming Oil 3186-G	gal.	—	.26
Reclaiming Reagent No. 4	lb.	.12	.15
Reclaiming Resin No. 1	gal.	.15	.35
R.P.A. No. 3	lb.	—	.46
Soda Ash (c.l., bags)	cwt.	—	1.40
Solvent 534	gal.	.22	.27
Solvent Oil 21	gal.	.24	.29
C-42	gal.	.27	.32
Union Solvent 4060-O	gal.	—	.199
X-1 Resinous Oil	lb.	.0175	.0250
X-60 Solvent	gal.	.24	.32

REINFORCING AGENTS—CARBON BLACK

Channel, Hard Processing (HPC) (bags)

Atlantic HPC-98	lb.	.0690	.1175
Continental F	lb.	.0690	.1125
Croflex	lb.	.0690	.1125
Crow	lb.	.0690	.1125
Dixiedensed (and S)	lb.	.0690	.1125
Kosmobile (and S)	lb.	.0690	.1125
Kosmos T	lb.	.0690	.1125
Micronex HPC	lb.	.0690	.1125
Spheron 4	lb.	.0690	.1170
Witco Disperso No. 6	lb.	.0690	.1125

Channel, Medium Processing (MPC) (bags)

Atlantic MPC-95	lb.	.0690	.1175
Continental A	lb.	.0690	.1125
Croflex TH	lb.	.0690	.1125
Dixie R-1	lb.	.0690	.1125
Dixiedensed HM (and S-66)	lb.	.0690	.1125
Huber Arrow TX	lb.	.0690	.1150
Kosmobile HM (and S-66)	lb.	.0690	.1125
Kosmos M	lb.	.0690	.1125
Micronex Standard	lb.	.0690	.1125
Spheron 6	lb.	.0690	.1170
Texas M	lb.	.0690	.1125
Witco Disperso No. 1	lb.	.0690	.1125

Channel, Easy Processing (EPC) (bags)

Atlantic EPC E-42	lb.	.0690	.1175
Continental AA	lb.	.0690	.1125
Croflex 77	lb.	.0690	.1125
Dixiedensed 77	lb.	.0690	.1125
Kosmobile 77	lb.	.0690	.1125
Micronex W-6	lb.	.0690	.1125
Spheron 9	lb.	.0690	.1170
Texas E	lb.	.0690	.1125
Witco Disperso No. 12	lb.	.0690	.1125
Wyex	lb.	.0690	.1150

Channel, Conductive (CC) (bags)

Dixie 5 dustless	lb.	.0832	.1375
Kosmink dustless	lb.	.0832	.1375
Spheron C	lb.	.1200	.1600
Spheron N	lb.	.2200	.2500
Voltex	lb.	.1500	.1850

Furnace, Fast Extruding (FEF) (bags)

Statex M	lb.	.0550	.0950

Furnace, High Modulus (HMF) (bags)

Continex HMF	lb.	.0500	.0900
Dixie 40	lb.	.0500	.0900
Dixie 50	lb.	.0550	.0950
Kosmos 40	lb.	.0500	.0900
Kosmos 50	lb.	.0550	.0950
Modulex	lb.	.0500	.0900
Philblack A	lb.	.0550	.0950
Statex 93	lb.	.0500	.0900
Sterling L	lb.	.0500	.0900
Sterling SO	lb.	.0550	.0950

Furnace, Reinforcing (RF) (bags)

Dixie 60	lb.	.0740	.1125
Kosmos 60	lb.	.0740	.1125

Furnace, Semi-Reinforcing (SRF) (bags)

Continex SRF	lb.	.0350	.0775
Dixie 20	lb.	.0350	.0775
Essex	lb.	.0350	.0775
Furnex	lb.	.0350	.0775
Gastex	lb.	.0350	.0775
Kosmos 20	lb.	.0350	.0775
Pelletex	lb.	.0350	.0775
Seminex	lb.	.0350	.0775
Sterling NS	lb.	.0350	.0775
Sterling R	lb.	.0350	.0775
Sterling S	lb.	.0350	.0775

Furnace, Fine (FF) (bags)

Statex B	lb.	.0575	.0975
Sterling 99	lb.	.0650	.1050
Sterling 105	lb.	.1200	.1600

Furnace, High Abrasion (HAF) (bags)

Philblack O	lb.	.0745	.1145
Vulcan 1	lb.	.0740	.1170
3	lb.	.0740	.1170

Furnace, Very Fine (VFF) (bags)

Statex K	lb.	.0740	.1125

Thermal, Fine (FT) bags)

P-33	lb.	—	.0500

Thermal, Medium (MT) (bags)

Thermax (c.l.)	lb.	—	.0300
Thermax, Stainless	lb.	—	.0350

EXCLUSIVE SALES AGENTS FOR

REVERTEX

RCMA

CENTRIFUGED LATEX

NORMAL LATEX
GR-S LATEX CONCENTRATE
NATURAL AND SYNTHETIC LATEX
COMPOUNDS

We maintain a fully equipped laboratory and free consulting service

LATEX DIVISION
RUBBER CORPORATION OF AMERICA
formerly Revertex Corporation of America
274 Ten Eyck Street, Brooklyn 6, N. Y.

Chicago Office:
111 West Monroe Street, Chicago 3, Ill.

Sales Representatives:
Charles Larkin II, 250 Delaware Ave., Buffalo 2, N. Y.
H. L. Blachford, Ltd., 977 Aqueduct St., Montreal 3, Canada
Ernesto Del Valle, Tolsa 64, Mexico D.F.

No need to **WHIP** *your* LATEX

SOCTEX TYPE **CA**

SOCFIN'S SPECIFICATION CENTRIFUGED LATEX HAS MINIMUM SEPARATION OR RECREAMING PROPERTIES.

Try it!

LATEX DISTRIBUTORS, INC.
1075 HULL STREET BALTIMORE 30, MD.

RMP **ANTIMONY**

• ATTRACTIVE
• NON-DETERIORATING

for RED RUBBER

RARE METAL PRODUCTS CO.
ATGLEN, PA.

ORIGINAL PRODUCERS OF MAGNESIUM SALTS FROM SEA WATER

Magnesium salts from the sea

REGULAR AND SPECIAL GRADES OF
MAGNESIUM
CARBONATES
OXIDES
FOR THE RUBBER INDUSTRY

MARINE MAGNESIUM PRODUCTS CORPORATION

Main Office, Plant and Laboratories
SOUTH SAN FRANCISCO, CALIFORNIA

Distributors:

WHITTAKER, CLARK & DANIELS, INC.
260 West Broadway, New York
CHICAGO: Harry Holland & Son, Inc.
CLEVELAND: Palmer Supplies Co.
TORONTO: Richardson Agencies, Ltd.
G. S. ROBINS & CO.
126 Chouteau Avenue, St. Louis
THE C. P. HALL CO.
Akron, Chicago, Los Angeles
WILLIAM D. EGLESTON CO.
Cambridge, Massachusetts

Write for Brochure

SOFTENERS and PLASTICIZERS
For RUBBER
From the Pine Tree

ROSIN OIL
PINE TAR
BURGUNDY PITCH
GALEX a non-oxidizing RESIN
Send for "Pine Tree Products" *Booklet*

NATIONAL ROSIN OIL PRODUCTS, Inc.
R. K. O. BUILDING, RADIO CITY, NEW YORK 20, N. Y.
Plant: Savannah, Ga. Branches in Principal Cities
PIONEERS OF THE INDUSTRY

REINFORCING AGENTS—MISCELLANEOUS

Darex Copolymer No. 3 (and X34)	lb.	.35	.37
No. X43	lb.	.36	.38
Darex Copolymer Latex No. 3 (and X34)	lb.	.36½	.50
Durez 12687 (and 12707)	lb.	—	.32
Durez 13355	lb.	—	.26
Marbon S and S-1	lb.	.36	.43
Marmix	lb.	.36	.43
Pliolite S6 Resin	lb.	.36	.37
G Masterbatch	lb.	.35	.36
G50 Masterbatch	lb.	.35	.36
R Masterbatch	lb.	.38	.39
Polyco 220	lb.	.13	.15

RETARDERS

Dutch Boy Normasal	lb.	—	.41¼
ESEN	lb.	.36	.38
Retarder ASA	lb.	—	.45
Retarder W	lb.	—	.43
Retardex	lb.	—	.51

RUBBER SUBSTITUTES

Mineral Rubber

38	ton	35.00	46.00
Black Diamond	ton	35.00	46.00
Byerlyte	ton	42.50	57.50
Gilsonite, Selecta (c.l.)	ton	36.50	37.50
Hard Hydrocarbon (dms.)	ton	44.50	46.50
Herron Flake	ton	48.50	49.50
Mineral Rubber, solid	ton	41.60	43.00
Pioneer	ton	35.00	46.00

Vulcanized Vegetable Oils (Factice)

Amberex	lb.	.30	.38
Brown	lb.	.16	.20
Dispersed	lb.	.27	.44
Neophax	lb.	.18	.36
White	lb.	.1300	.3200

Miscellaneous Rubber Substitutes

Gilsowax	lb.	.04½	.05
Insulac	lb.	.06	.06½
Resin No. 1098 (drums)	lb.	—	.65
No. 1198	lb.	.31	.35

SOLVENTS

Acetone (dlvd.)	lb.	.07½	.09½
American Dipentine	gal.	.20	.36
American Pine Oil	gal.	.45	.56
Amsco Lactol Spirits (t.c.)	gal.	—	.16
Rubber Solvent (t.c.)	gal.	—	.15
Solv A (t.c.)	gal.	—	.22
Solv A-80 (t.c.)	gal.	—	.265
Solv B (t.c.)	gal.	—	.26
Solv B-90 (t.c.)	gal.	—	.29
Solv D (t.c.)	gal.	—	.285
Solv F (t.c.)	gal.	—	.285
Special Napthalite (t.c.)	gal.	—	.15
Textile Spirits (t.c.)	gal.	—	.16
Amyl Chlorides, Mixed (t.c.l.) (drums)	lb.	—	.08
Aromatic Solvent 40	gal.	—	.199
Benzol 90%	gal.	.17	.24
Butyl Acetate (t.c.)	lb.	—	.175
Butyl Alcohol (t.c.)	lb.	—	.175
Secondary (dlvd.)	lb.	.10	.12
Tertiary (dlvd.)	lb.	.12	.14
Carbon Bisulfide, Tech.	lb.	.05	.08
Carbon Tetrachloride	gal.	—	.80
Cosol 1	gal.	.30	.38
Cosol 2	gal.	.30	.38
Cyclohexane	lb.	.08	.10
Cyclohexanone	lb.	.25	.27 a
Diacetone, Pure (dlvd.)	lb.	.12	.14
Dichlorethyl Ether (dms.)	lb.	.165	.17
Formal (dms.)	lb.	.265	.27
Dichloropentane (t.c.l.)	lb.	—	.04½
Dipentene 122 (dms.)	gal.	.35	.36
Ethyl Alcohol (t.c.)	gal.	—	.375
Ethyl Alcohol SD-1 (t.c.)	gal.	—	.43
Ethyl Alcohol SD-2B (t.c.)	gal.	—	.41½
Ethylene Dichloride (drums, dlvd.)	lb.	.08	.09½
Halowax Oil	lb.	.25	.37
Heptanes (t.c.)	gal.	—	.16
Hexalin Cyclohexanol	lb.	.20	.22 a
Hexanes (t.c.)	gal.	—	.16
Isopropyl Alcohol, Ref. 99% (dvld.)	gal.	.25½	.38½
Ether, Ref. (dlvd.)	lb.	.04½	.06½
Mesityl Oxide (dlvd.)	lb.	.115	.135
Methanol (dms., dlvd.)	gal.	.43	.495
Methyl Acetone, Syn. (drums, dlvd.)	gal.	.615	.65
Methyl n-Amyl Ketone (drums)	lb.	.37	.39

SOLVENTS (Cont'd)

Methyl Ethyl Ketone	lb.	.10	.12
Methyl Isobutyl Ketone (dlvd.)	lb.	.125	.145
N-5 Pentane Mix. (t.c.)	gal.	—	.11½
N-6 Hexanes (t.c.)	gal.	—	.14
N-7 Hexanes (t.c.)	gal.	—	.13
Petrolene (t.c.)	gal.	—	.10⅜
Picolines, Aplha, Refined	lb.	.75	1.00
Mixed	lb.	—	.45
Proprietary Alcohol (t.c.)	gal.	—	.43½
Pyridine, Refined	lb.	.80	.89
Quinoline	lb.	.50	.60
Rubber Solvent (t.c.)	gal.	—	.15
Rubsol (t.c.)	gal.	—	.08625
Skellysolve B (Hexanes) (t.c.)	gal.	—	.141
C (Heptanes) (t.c.)	gal.	—	.133
E (Octanes) (t.c.)	gal.	—	.155
R (Solvent Naphtha)	gal.	—	.109
Solvenol (dms.)	gal.	—	.36
Solvent, Crude, Light	gal.	.19	.28
Solveaso 100 (t.c.)	gal.	—	.27
150 (t.c.)	gal.	—	.27
Sunny South Dipentene	gal.	.20	.36
Sunny South Pine Oil	gal.	.45	.56
Toluene (drums)	gal.	—	.28
Toluol (t.c.)	gal.	—	.30
Trichlorethane	lb.	.11	.12
Triglycol Dichloride (dms.)	lb.	.519	.59
Tromex	lb.	.078	.083
Union Thinner 1	gal.	—	.149
3	gal.	—	.149
7	gal.	—	.139
X-7 Sp. Heptanes (t.c.)	gal.	—	.11
Xylene (drums)	gal.	—	.30

STABILIZING AGENTS (for Vinyl Resins)

Basic Silicate White Lead	lb.	.1450	.1725
Dutch Boy DS-207	lb.	—	.49¾
Plumb-O-Sil A	lb.	—	.27¼
B	lb.	—	.28¾
Tribase	lb.	—	.23¾
Dythal	lb.	—	.36½
Lead Stearate, Precip.	lb.	.55	.57
Fused	lb.	.60	.62
Lithium Stearate	lb.	.75	.77
Stabelan A	lb.	.55	.65
G Paste	lb.	—	1.00
XL	lb.	.55	.65
Stabilizer V-7939	lb.	—	.60
Stabilizer JCX	lb.	.49	.51
SN	lb.	—	.42
V-1-N	lb.	.44	.50
V-9	lb.	—	.85
Vanstay	lb.	.33	.35

SUN CHECKING AGENTS

Antisol	lb.	.25	.26
Heliozone	lb.	.25	.26
Sunolite	lb.	.23	.24
Sunproof	lb.	.25	.26
Jr.	lb.	.18	.19
Tonox	lb.	.50	.52

TACKIFIERS

Advaresin 100	lb.	.13½	.14
Agchem RC 30	gal.	.65	1.34
Amberol ST-137X	lb.	.33	.33½
Arco 493-49B	lb.	.15	.17
700-25A	lb.	.14	.16
U2-24	lb.	.11	.13
Beckopol 1400 (dlvd.)	lb.	.25½	.26
Dutrex 44	gal.	—	.919
E-310 Resin Emulsion	lb.	—	.14
Galex (drums)	lb.	—	.15
Koresin	lb.	—	.75
Liquid Rubber Flux	lb.	—	.125
Pentalyn Resins (dlvd.)	lb.	.19½	.22½
Resin V	lb.	—	.23¼
Rubtack	lb.	—	.12
Staybelite Esters (dlvd.)	lb.	.2100	.2150
Super-Beckacite No. 1001 (dlvd.)	lb.	.34	.34½
Synthol	lb.	—	.20½
Vistac No. 1	gal.	—	1.32
No. 2	gal.	—	1.66
No. 4	gal.	—	1.80

THICKENERS (FOR LATEX)

Acrysol GS	lb.	.14½	.22
Alcogum A-5	lb.	.10	.12
Betanol (drums)	lb.	—	.70
Emulsorex No. 5	lb.	—	.35
Lecithin	lb.	.12	.17
Polyco 296	lb.	.13	.15
Propylene Laurate (dms.)	lb.	—	.36
Sodium Silicate	cwt.	1.10	2.00

VULCANIZING AGENTS

Selenium

Vandex	lb.	—	2.00

Sulfur

Blackbird	cwt.	—	2.30
Crystex (l.c.l.)	lb.	.19½	.23
Dispersed Sulfur	lb.	—	.09
No. 2	lb.	.10	.15
Devil (c.l.)	cwt.	—	1.75
Insoluble Sulfur 60	lb.	.13	.13½
Spider	cwt.	—	2.30
Star (c.l.)	cwt.	—	2.25
Tire	cwt.	1.75	2.35
Tube (c.l., dlvd.)	cwt.	2.25	2.85

Tellurium

Latex Telloy	lb.	—	2.00
Telloy	lb	—	2.00

Miscellaneous Vulcanizing Agents

VA-3	lb.	.55	.65

WASHING & FINISHING AGENTS

Apcolene (t.c.)	gal.	—	.09½

WETTING AGENTS

Advawet No. 10	lb.	—	.35
No. 15	lb.	—	.18
No. 33	lb.	.40	.43
Aerosol OT 70% Clear	lb.	.80	1.00
Agchem SA-15 (16, 18)	lb.	.17	.29
Alrosol (dms.)	gal.	—	.48
Aquarex D	lb.	—	.76
ME	lb.	—	.92
NS	lb.	—	.60
SMO	lb.	—	.50
Areskap 50	lb.	.30	.38
Dry 100	lb.	.60	.72
Aresket 240	lb.	.30	.38
Dry 300	lb.	.60	.72
Aresklene 375	lb.	.42	.57
Dry 400	lb.	.70	.84
Armacs	lb.	.29	.76
Arquads	lb.	.24	.27
Etho-chemicals	lb.	.34	.80
Lecithin	lb.	.12	.17
Santomerse D	lb.	.43	.65
S	lb.	.12	.25
Sorbit P	lb.	—	.28
Stablex G	lb.	—	.70
Trenamine W-50	lb.	.20	.22
Triton K-60	lb.	.33½	.41
N-100	lb.	.59½	.67
R-100	lb.	.14½	.25
720	lb.	.30½	.38
770	lb.	.21¾	.29¼
Vultamol	lb.	—	.17½

MISCELLANEOUS CHEMICALS

Acto 450 (550-W, 600, 630)	lb.	.109	.145
Agchem SA-17	lb.	—	.29
Aquarex SMO	lb.	—	.50
A.S.T.M. Oil No. 1 (and No. 3)	gal.	1.00	1.15
Copper Inhibitor X-872-L.	lb.	—	1.75
2-Ethylhexanol (dms.)	lb.	.25	.26
Glycerine, 88% Sap., Crude (dlvd.)	lb.	.20½	.21
MODX (tons)	lb.	—	.29½
Para Resin No. 1784	lb.	—	.09¾
No. 2457 (c.l.)	lb.	—	.04
No. 2718 (c.l.)	lb.	—	.04
pHR	lb.	—	2.00
Pigmented Filmite	lb.	—	.16½
Polyvinyl Methyl Ether	lb.	—	1.00
Reference Fluid SR-6	gal.	.85	1.00
SR-10	gal.	.60	.75
Resin No. 1226	lb.	.31½	.36½
Resorcinol	lb.	—	.75
Rio Resin	lb.	.50	.52
Rubber Resin LM-4	lb.	.28	.35
Santocel	lb.	—	.50
Sublac	lb.	.30	.32
Synpep N (drums)	lb.	—	.54
Thiokol LP-2	lb.	—	.90
LP-3	lb.	—	.90
Tysonite	lb.	.21½	.22¼
Vanfre	gal.	2.00	2.50
Vinsol Resin—Lumps	cwt.	—	5.00

MICA

WATERGROUND WHITE and BIOTITE MICAS — Used for over 40 Years in the Rubber Industry

THE ENGLISH MICA COMPANY
STERLING BUILDING, STAMFORD, CONN.

Tamms MINERAL BLACK

A low cost filler for Molded Rubber Products

- IMPARTS SUPERIOR PHYSICAL QUALITIES
- ACTS AS AN EXCELLENT REINFORCING FILLER
- HAS GOOD TINTORIAL STRENGTH
- GIVES ADDED PIGMENTATION

Will not float... Is not a greasy black

WRITE FOR INFORMATION, SAMPLE AND PRICE

TAMMS SILICA COMPANY
228 NO. LASALLE STREET, CHICAGO 1, ILLINOIS

THE DAILY GUIDE
That is indispensable to buyers of Rubber

THE TRADE NEWS SERVICE
Established (1915)
23-25 Beaver St. New York 4, N. Y.

featuring

MARKET REPORTS • RUBBER IMPORTS • STATISTICS

Write for Free Trial Service

Mold Lubricant No. 735

If Your Production Suffers From:

1. Lost time in cleaning molds, high mold maintenance
2. Scrap resulting from rounded or imperfect molded surfaces
3. Dull,
4. Poor release causing separation in rubber
5. Obnoxious odors
6. Overwhelming cost of Lubricant

Try a sample of our Mold Lubricant #735 and cure your troubles

Whenever you see molded rubber with a clean, bright, glossy finish, you can bet the Rubber Manufacturer will tell you he is usjng Mold Lubricant #735.

STONER'S INK COMPANY
QUARRYVILLE, PENNA.

RUBBER STATISTICAL BULLETIN

Annual Subscription $5.00

The only official world rubber statistics, published monthly by the Secretariat of the Rubber Study Group.

Exclusive Subscription Agent in the U. S. A.

RUBBER AGE
250 W. 57th STREET
NEW YORK 19, N. Y.

"READI-SOL"
really CUTS cleaning costs!

Removes OIL and GREASE from Machinery — Metal Parts Cement Floors — Tanks, etc.
CAN BE EMULSIFIED AND REMOVED WITH WATER.

Write for further information

PREVENTIVE MAINTENANCE COMPANY
BRIDGEPORT 5, CONNECTICUT

AIR BAG BUFFING MACHINERY
STOCK SHELLS HOSE POLES
MANDRELS

NATIONAL SHERARDIZING & MACHINE CO.
868 Windsor St. Hartford, Conn.
Representatives: Akron San Francisco New York

JOHNSON HOSE REINFORCEMENT WIRE

High tensile liquor finish hose reinforcement wire for high pressure hydraulic hose of wire braided type. Prompt shipment.

JOHNSON STEEL & WIRE COMPANY, INC.
Worcester 1, Massachusetts

Doxco Colours REGD
STOCK IN NEW YORK

THE DERBY-OXIDE & COLOUR COMPANY LIMITED
RUGELEY, STAFFS., ENGLAND
MANUFACTURERS OF FINE QUALITY OXIDE OF IRON COLOURS
PURE INDIAN RED
Exclusive representative for United States and Canada
JOSEPH A. McNULTY
114 LIBERTY STREET • *IT COSTS NO MORE TO BUY THE BEST* • NEW YORK CITY

CLASSIFIED WANT ADS

RATES:

All Classifications (except Positions Wanted):
9c per word in light face type—Minimum, $3.00
12c per word in bold face type—Minimum, $3.00

Positions Wanted:
$1.00 for 40 words or less; extra words, 5c each.
When Box Number is used, add 5 words to word count.

If heading is to be set on separate line, count it as 10 words if light face type is used, or 8 words if bold type is used.
Display or Classified advertisements in borders: $10.00 per column inch; maximum, 85 words per inch.
All Classified Advertising must be paid in advance except for advertisers on contract. Send check with copy.
Replies to keyed advertisements will be forwarded to advertiser without charge.

Address all replies to Box Numbers care of RUBBER AGE, 250 West 57th Street, New York 19, N. Y.

POSITIONS WANTED

LATEX CHEMIST, twenty years experience, desires, responsible position in production and/or development with small growing concern. Research and development compounding experience in natural and synthetic latices for sponge, thread, dipped goods, etc. At present employed in Midwest. Age forty-three, single, can travel. Location immaterial. Can furnish best references. Address Box 431-P, RUBBER AGE.

TECHNICAL SALES: Rubber Chemist, nine years experience compounding, developing, and factory processing on wire and cable, mechanicals, belts, molded hose, and molded goods, desires position with a future in progressive company. College graduate. Initiative. Excellent recommendations. Married. Jewish. Address Box 450-P, RUBBER AGE.

RUBBER CHEMIST: Six years of diversified experience in compounding, development and factory processing on mechanicals, belts, and molded goods. Desires change to Technical Sales. A.B. Degree. Married. Good appearance and personality. Address Box 451-P, RUBBER AGE.

RUBBER CHEMIST: Desires position with New England manufacturer or supplier. Has broad experience in mechanical rubber goods compounding, production and control, including intensive work with thermoplastic drawn and molded rubber-resin mixes. Experience also includes practical knowledge of foam sponge processing and compounding. Above experience plus one year of intensive sales work, prove excellent qualifications for technical service position. Address Box 452-P, RUBBER AGE.

RUBBER CHEMIST AND COMPOUNDER: Many years of experience mechanical goods, hard rubber, solid industrial tires, extruded products, etc. Several years as manager small rubber factory. Graduate. Location immaterial. Employed. Address Box 459-P, RUBBER AGE.

FACTORY MANAGER AVAILABLE

Thirty years experience—factory manager past ten years. Production and profit record unexcelled. Complete charge of hose manufacture all types, extruded products, molded goods, V-belts. Complete knowledge industrial, experimental and layout engineering. Best references. Address Box 463-P, RUBBER AGE.

PLANT MANAGER—RUBBER CHEMIST: Thirteen years experience in all phases of rubber chemistry and plant management, including five years in latex sponge. B.S. degree in chemistry. New England location preferred. Address Box 464-P, RUBBER AGE.

TECHNICAL SUPERINTENDENT-PRODUCTION MANAGER desires new connection. Over twenty years of practical experience in large and small plants manufacturing all kinds of mechanical rubber goods including sponge rubber. Location in West desired. Address Box 465-P, RUBBER AGE.

RUBBER TECHNOLOGIST: B.S. 1931. Married. Seven years as chief chemist in insulated wire industry with additional experience in molded goods. Good factory trouble-shooter. Reliable, efficient and energetic. Experienced in management of labor. Interested in locating in a small or medium-sized plant which needs a rubber chemist who can control quality and supervise production. Available immediately. Address Box 466-P, RUBBER AGE.

CHEMIST-EXECUTIVE with over twenty years experience, fifteen years as chemist, compounder, process and development engineer including mold design and general factory engineering. Six years as Chief Chemist and Assistant Factory Manager, tires, tubes, mechanicals, flooring. Address Box 473-P, RUBBER AGE.

CHIEF CHEMIST, fully experienced in administration, direction and pursuit of research-developments, production and processing controls of all types of sponge rubbers and latex foams, including neoprene foams. Now available due to dissolution of company. Location immaterial. Address Box 475-P, RUBBER AGE.

RUBBER CHEMIST-ENGINEER: Eight years experience in compounding research, factory quality and processing control in tires, tubes and related products, desires new connection with small, well established, progressive organization. Now employed by large Eastern tire mfr. Recommendations. B.S. in Chem. Eng., married, age 30. Address Box 476-P, RUBBER AGE.

HELP WANTED

RUBBER COMPOUNDER and DESIGNER, experience in braided hose and belting essential. State age, height, weight, education, and job background, with previous salaries earned. Address Box 419-W, RUBBER AGE.

SALES REPRESENTATION wanted by established rubber manufacturer selling all types of industrial rubber products, molded rubber to metal adhesion, rolls and rollers, tank lining, pulley lagging, etc. Commission basis. Prefer men now contacting industrial trade with allied lines. Territories open: Northern Ohio, Pennsylvania, New York, New England, Maryland, West Virginia, Southern Ohio, and Southern Illinois. Address Box 427-W, RUBBER AGE.

OPPORTUNITY: Director of Rubber Laboratory, Chemical Engineer. Mechanical rubber manufacturer needs aggressive, executive type rubber chemist with compounding knowledge and organic chemistry background. Belting and hose compounding essential. Manager of Research and Rubber Development Division open for right man. State age, education, job experience, recent earnings. Address Box 453-W, RUBBER AGE.

LATEX CHEMIST: Several years' experience in compounding of natural and synthetic latex for use in dipping, impregnation and lamination. Desire aggressive individual to initiate and carry through development of new compounds. Please give details of experience, education and salary requirements. Location in New York area. Address Box 455-W, RUBBER AGE.

CHEMISTS AND ENGINEERS

A well-established, nationally-known and financially responsible concern is planning to manufacture a product involving pressure-sensitive adhesives. Men with experience in tape preferred, as many of the problems involved will bear a direct relationship to tape.

An excellent opportunity for men who can fulfill requirements and are willing to take the responsibility of getting a new division going at top speed. The organization will build up as fast as possible but the leader selected would have an opportunity to build up his own organization.

Replies will be confidential and handled by top management of company. Salaries to be commensurate with ability and experience of individuals selected. Give experience, references, professional and personal information.

Address Box 456-W, RUBBER AGE

CANVAS AND RUBBER FOOTWEAR: Excellent opportunity to achieve key position in newly established plant located in Southern California. Openings for stitching room, making room, and mill room men, also pattern maker. All must be thoroughly familiar with the latest methods. State full information in first letter indicating salary expected. All applications kept confidential. Address Box 457-W, RUBBER AGE.

TECHNICAL SALES: New plant located in Southern California has opening for aggressive sales manager for molded goods division. Must be experienced, be prepared to take charge of sales, development of new products, and be familiar with the manufacturing process. State full details and expected salary. All replies treated confidentially. Address Box 458-W, RUBBER AGE.

PRODUCTION SUPERINTENDENT, with experience in hard rubber. Located in Chicago area. Please send complete resume. Address Box 467-W, RUBBER AGE.

RUBBER CHEMIST: Must have complete knowledge of compounding various mixtures of neoprene, latex, etc. for the application and coating to backs of hair and fibre belts. State age, experience and salary desired. Address Box 471-W, Rubber Age.

✓ CHECK WITH US FOR **Rubber and Plastic** 39 YEARS EXPERIENCE

√ UNCURED COMPOUNDS √ RUBBER **Scrap** √ POLYETHYLENE √ VINYL (PVC)

ROTEX RUBBER COMPANY INC.

437 RIVERSIDE AVE., NEWARK 4, N. J. **TELEPHONE: HUMBOLDT 2-3082-8458**

BUSINESS OPPORTUNITIES

We do Rubber Compounding, Light Color Stock Mixings, and GR-S Breakdown. FRANK T. BAKER RUBBER COMPANY, 63 Arch Street, Fall River, Massachusetts.

SELL NOW! BEFORE PRICES DROP FURTHER! Wanted: Chemicals, Colors, Pigments, Resins, Solvents, Oils, Waxes, Lacquers, Other Materials, Supplies, Equipment, etc. CHEMICAL SERVICE CORPORATION, 84 Beaver St., New York 5, N. Y.

JOBBERS: Write for proposition on household, surgical, industrial rubber gloves. GLOVE MANUFACTURER, Box 247, Marion, Ohio.

ATTENTION: RUBBER GOODS MOLDERS & MANUFACTURERS

I have a patent pending on a unique out-door step De-Icer. Have molds. Has a potential market of millions. Am willing to sell rights on a royalty basis to reliable concern which can manufacture and market same. For full details and information, write or call JOHN TRAGER, 104 Suffolk St., Malden, Mass. Phones: Malden 4-9022, 4-3121.

OPEN TIME AVAILABLE FOR RUBBER COMPOUNDING AND MIXING to your specification. Excellent service. Nominal rates. Inquiries invited. ELM CITY RUBBER COMPANY, P. O. Box 1864, New Haven, Conn.

WANTED—
PITCHING HORSESHOES

Distributor requires manufacturing source for molded pitching horseshoes in quantity, or will purchase molds at a reasonable price.

BOX 724

THE READINGER CORP.
20 South 15th St., Phila, 2, Pa.
LOcust 4-0240

FOR SALE: RUBBER PLANT

Opportunity to purchase at a sacrifice price a complete molded and dipped goods plant located in best industrial section of Los Angeles. Owners consolidating operations. Available now. For full particulars write—

Radiator Specialty Co., Charlotte, N. C.

WE OFFER

18,500 aluminum, standard sizes, toy balloon forms, mounted on thirty-five inch channels. Round Type, sizes 5, 6, 7, 8, 9 and 11. Airship Type, numbers 312, 318, 426 and 524. If interested, will be pleased to give further details, prices, etc. Will also export, pack and ship if so desired.

Horace Rubber Products Co., Inc.
588 Broadway New York 12, N. Y.

RUBBER PRODUCTS PATENTS, desired, large national mechanical manufacturer. Confidential. Complete details first letter.

Address Box 470-B, RUBBER AGE

WANTED—Large engineering firm wishes to acquire several complete rubber plants through purchase of (1) capital stock, (2) assets, (3) machinery and equipment, whole or in part. Personnel retained where possible, strictest confidence. Address Box 1212, 1475 Broadway, New York 18, N. Y.

BLACK
Master Batching
Mixing of all kinds
BESTREAD PRODUCTS CO. STOUGHTON, MASS.

EQUIPMENT WANTED

WANTED: Complete rubber plants. Also individual items such as: 2-roll mills, calenders, mixers and Banbury Mixers. R. Gelb & Sons, Inc., State Highway No. 29, Union, New Jersey.

WANTED: Two or three circular looms for weaving cotton fire hose jackets. Address Box 461-E, RUBBER AGE.

WANTED: #3A Banbury Mixer, 60" Calender, heavy duty Hydraulic Presses. Address Box 468-E, RUBBER AGE.

WANTED: Mooney Viscometer. Address Box 472-E, RUBBER AGE.

EQUIPMENT FOR SALE

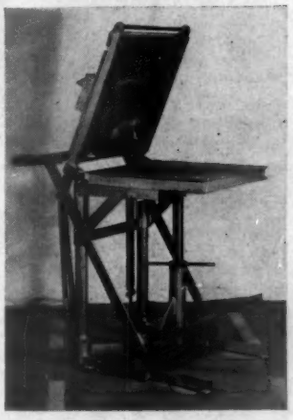
FOR SALE: 16 x 42" Rubber Mill, motor and controls. 22 GPM Triplex Pump; 2 Oilgear Pumps and Motors. 15 H.P. automatic high pressure boiler. Like new. GRANT ENGINEERING COMPANY, 2640 Prairie Avenue, Chicago 16, Illinois.

FOR SALE: RUBBER LABORATORY, Thropp Mill, 6" x 16", 5 H.P., 220v AC Motor; Taylor Controlled 24" x 24" 2-opening Stewart Bolling Press; Hydraulic Pump; L-5 Scott Tester; Oxygen Bomb; Readco Mixer; 5 H.P. Boiler; Arbor Press; Molds; Guages. Address Box 449-S, RUBBER AGE.

FOR SALE: 4" Adamson extruder, also 40" vulcanizer with 48" bolted door. FALCO SUPPLY CO., 324 Main St., Charlestown, Mass.

FOR SALE: 1—new long rotor for #3 Banbury; 1—used long rotor for #9 Banbury; 1—Span chopper; 1—Span grinder; 1—24" x 24" press, 14" ram equipped with 5 electrically heated platens and controls. Address Box 474-S, RUBBER AGE.

SPONGE RUBBER VULCANIZING PRESS
HIGHEST EFFICIENCY LOW COST



Rapid operation; easily closed and opened.

Guaranteed sufficient pressure for all sponge rubber requirements.

Standard Platen Size 26" x 26". Floor space required, 30" x 30" — No floor space lost by work table. All other special sizes of platens available to fit any requirement.

MANUFACTURED BY STANLEY H. HOLMES CO., CHICAGO, ILL.
SOLE AGENT

ERIC BONWITT
431 So. Dearborn St. CHICAGO 5, ILL.
Phone: WEbster 9-3548

B. F. GOODRICH — FLEXOMETERS and — CORD TESTERS

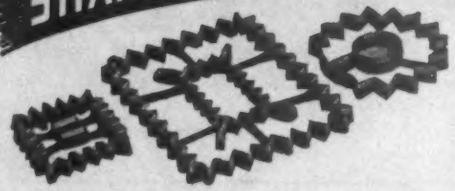
FLEXOMETER
(For Hysteresis Testing of Rubber and Synthetics)

CORD TENSION VIBRATOR
(For Fatigue Resistance Testing of Cords)

Manufactured exclusively by

FERRY MACHINE CO.
KENT, OHIO

SHARP EDGE CUTTING DIES



Also PERFORATING TUBES and COLLETS of all types

INDEPENDENT DIE & SUPPLY COMPANY
LaSalle & Ohio Sts. • St. Louis 4, Missouri

NEW & REBUILT MACHINERY

Equipped to Furnish Complete Plants

L. ALBERT & SON

OFFICES AND PLANTS
TRENTON, N. J. • CHICAGO, ILL. • AKRON, OHIO
LOS ANGELES, CALIF. • STOUGHTON, MASS.

Our Rebuilding Process Removes the Element of Risk by These Five Important Steps:
1. INSPECTED
2. DISASSEMBLED
3. REBUILT
4. MODERNIZED
5. GUARANTEED

Our New Machines:
MILLS
MIXERS
BRAKES
PRESSES
CUTTERS
SUSAN GRINDERS

STEEL CALENDER STOCK SHELLS

ALL STEEL, ALL WELDED CONSTRUCTION, with forged steel hubs for 1¼", 1½" and 2" square bars.

4", 5", 6", 8", 10", 12", 15", 20" and 24" diameters. Any length.

Also Special Trucks (Leaf Type) Racks, Tables and Jigs. Used in manufacturing rubber and plastic products.

THE W. F. GAMMETER COMPANY
CADIZ, OHIO

MT. VERNON-WOODBERRY MILLS

uniformity makes the big difference

TURNER HALSEY COMPANY
Selling Agents
40 WORTH ST. • NEW YORK
Branch Offices: CHICAGO • ATLANTA • BALTIMORE • BOSTON • LOS ANGELES • AKRON

HOWE MACHINERY CO., INC.
30 Gregory Avenue, Passaic, N. J.
DESIGNERS & BUILDERS
OF V BELT MANUFACTURING EQUIPMENT
Cord Latexing, expanding mandrels, automatic cutting, skiving, flipping and roll drive wrapping machines
ENGINEERING FACILITIES FOR SPECIAL EQUIPMENT
Call or Write

EQUIPMENT FOR SALE—(Continued)

SURPLUS EQUIPMENT

Inert Gas Generators for inflating rubber bags, purging tanks, protecting inflammable liquids in storage. .6 GE atmosphere converters, 500 CFH. 3 pumps, Westco periph, turb., 18 GPM @ 100', with 1 HP explosion proof mtrs. 3 filter presses, Shriver No. 7. This equipment 1942 or later and priced at fraction of original cost. LIBERTY PLANERS, INC., Hamilton, Ohio. Mr. Warner. Hamilton 5-5661.

FOR SALE: 14 Oil Hydraulic Units 500# Low, 2000# Hi-Pressure Pumps, 50 and 65 gal. reservoir, 5 to 10 H.P. motors, complete with all operating valves. All in good operating condition. For use with Rubber or Plastic presses. YALE RUBBER MFG. CO., Sandusky, Michigan.

FOR SALE: If you are interested in good used rubber working machinery, we can help you. Can furnish one piece or equip an entire plant and save you money. Engineering service and installation drawings available. THE JAMES F. MUMPER CO., Engineers, 313 Everett Bldg., Akron 8, Ohio.

FOR SALE: New equipment. Strip feed and cooling conveyors. Batch make-up feed conveyors. Latex and cement mixers. Pneumatic syphon for latex and other liquids. THE JAMES F. MUMPER CO., Akron 8, Ohio.

FOR SALE: Selectrol High Speed Automatic Check Weighing Machine, Model #0-243-M, manufactured by the Exact Weight Scale Company. Address Box 460-S, RUBBER AGE.

FOR SALE: 1—Day Mogal Type Mixer, Size 5. 1—EEMCO Lab. 2-roll rubber mill, 6" x 12". 1—#1 Royle Extruder. Address Box 462-S, RUBBER AGE.

SAVE WITH GUARANTEED REBUILT EQUIPMENT—Hydraulic Presses: 26" x 24", 13" ram, 400 tons; 36" x 36", 19" ram, 425 tons; 24" x 42", 2-12" rams, 340 tons; 34" x 40", 22" ram, 475 tons; 26" x 24", 18½" ram, 800 tons; 24" x 24", 18" ram, 318 tons; 24" x 24", 12" ram, 170 tons; 42" x 42", 16" ram, 250 tons; 36" x 52", 14" ram, 385 tons; 36" x 36", 12" ram, 141 tons; 24" x 26", 10" ram, 118 tons; 20" x 20", 10" ram, 118 tons; 19" x 24", 10" ram, 78 tons; 22" x 15", 8" ram, 75 tons; 15" x 15", 8" ram, 75 tons; 12" x 12", 7½" ram, 50 tons; 12" x 12", 6½" ram, 42 tons; 8" x 9½", 4½" ram, 20 tons; 16" x 16", 3½" ram, 12 tons. Laboratory Press: 6" x 6", 30 tons. New Dual Pumping Units, all sizes: Worthington Triplex 12 gal., 2,200#; 4 plunger, 6 gal,. 2,000#; Watson-Stillman duplex box type 1 gal., 2,500#; Worthington 1 gal., 10,000#. New Laboratory 6" x 12" M.D. Mills; Thropp 16" x 40" M.D. Mill. Extruders: Royle No. 2 M.D. Preform Machines: Stokes R & T; Colton 5 and 5½T. Mixers, Accumulators, Vulcanizers, etc. UNIVERSAL HYDRAULIC MACHINERY COMPANY, 285 Hudson Street, New York 13, N. Y.

FOR SALE: One new 60" Spreader; one 72" Beamer; new 60" Measuring and Tubing Machine; one Butterworth three-roll 50" Calender. All equipment in excellent working order. These machines can be moved immediately. Address Box 469-S, RUBBER AGE.

FOR SALE: One Watson-Stillman Hydro-Pneumatic Accumulator low and high (3,000#) pressure with pumps, motors, and accessories. One 48" x 48", 3 opening Hydraulic Press with four 16" rams; other presses, various sizes. One 6' x 24' Vulcanizer, 100# pressure, quick opening door. Six Royle and other Tubers 2½" to 8". Also Mills, Calenders, etc. Send us your inquiries, CONSOLIDATED PRODUCTS COMPANY, INC., 14-19 Park Row, New York 7, N. Y. Telephone: BArclay 7-0600.

Directory of CONSULTANTS

PHILIP TUCKER GIDLEY
Consulting Technologist—Research, product development, formulas, factory plans, engineering, chemical and physical testing.
Fairhaven, Massachusetts

R. R. OLIN LABORATORIES
Rubber Technologist—Development and research in Natural Rubber, Synthetic Rubber and Plastics. Also chemicals and compounding materials used with these materials.
PO Box 372 RA, Akron 9, Ohio

THE JAMES F. MUMPER CO.
ENGINEERS
Complete plants and alterations. Buildings, Services, Equipment, and Maintenance. Solid Rubber, Plastics, Latex. Rubber Reclaiming. Special Equipment.
313-314-315 Everett Bldg. Akron 8, Ohio
Phone: JEfferson 4543

FOSTER D. SNELL, INC.
Chemists — Engineers
29 West 15th Street New York 11, N. Y.
The experience of our staff plus the RUBBER and PLASTIC EQUIPMENT of our 10-story laboratory building, which includes 2½-inch and 6-inch steam-heated mills, curing presses, and the usual supplementary equipment can solve your problems. Mills may also be used on a per diem basis.
Ask for our special booklet on "Plastics and Rubber" or Brochure #16 "The Chemical Consultant and Your Business."

INDEX TO ADVERTISERS

A

Adamson United Co. — Advance Solvents & Chemical Corp. — Akron Equipment Co. 353 Akron Standard Mold Co. 278 Albert, L., & Son 364 American Cyanamid Co. Calco Chemical Division 267 Industrial Chemicals Division — American Firstoline Corp. — American Polymer Corp. — American Zinc Sales Co. — Ames, B. C., Co. — Argus Chemical Laboratory Inc. — Atlas Electric Devices Co. —

B

Baird Rubber and Trading Co. 357 Baker & Adamson Products, General Chemical Division — Baker, J. T., Chemical Co. — Baldwin Locomotive Works 271 Barrett Div., Allied Chemical & Dye Corp. 262 Beacon Co. 258 Bestread Products Co. 363 Biggs Boiler Works Co. — Binney & Smith Co. Insert Following 324 Black Rock Mfg. Co. 342 Bolling, Stewart, & Company, Inc. 343 Bonwitt, Eric 363 Bridgwater Machine Co. — Brockton Cutting Die & Machine Co. 353 Brooklyn Color Works, Inc. — Brown Co. 347

C

Cabot, Godfrey L., Inc. 277 Cambridge Instrument Co. 343 Cameron Machine Co. 340 Carbide & Carbon Chemicals Corp. — Carey, Philip, Mfg. Co. 365 Carter Bell Mfg. Co. 346 Ceylon Produce & Rubber Co. — Chemical & Pigment Div., The Glidden Co. — CLASSIFIED ADVERTISING 362, 363, 364 Cleveland Liner & Mfg. Co. Back Cover Colledge, E. W., General Sales Agent, Inc. — Columbian Carbon Co. Insert Following 324 Concord Mica Corp. 365 CONSULTANTS SECTION 364 Continental Carbon Co. 286, 287 Coulter, James, Machinery Co. 338

D

Derby-Oxide & Colour Co., Ltd. 361 Dewey and Almy Chemical Co. — Diamond Alkali Company Pure Calcium Prod. Div. — Dow Chemical Co. — Dow Corning Corp. Insert Following 280 du Pont de Nemours, E. I. & Co., Inc. Pigments Department 264 Rubber Chemicals Div. Second Cover & 339, 349

E

English Mica Co. 361 Erie Engine & Mfg. Co. —

F

Falls Engineering & Machine Co. 339 Farrel-Birmingham Co., Inc. 275 Fawick Airflex Co., Inc. — Ferry Machine Co. 363 Flintkote Co., The — Foremost Machine Builders, Inc. 349 Foxboro Company 341

G

Gammeter, W. F., Co. 364 General Atlas Carbon Co. 260 General Electric Co., Chemical Dept. Resin & Insulation Materials Div. 268 General Latex & Chemical Corp. 276 General Magnesite & Magnesia Co. — Genseke Brothers — Gidley, Philip Tucker 364 Glidden Co., Chemical & Pigment Div. — Goodrich, B. F., Chemical Co., (Chemical) — Goodrich, B. F., Chemical Co., (Hycar) 255 Goodyear Tire & Rubber Co., (Chemical Div.) 257, 261 Grant Engineering Co. —

H

Hall, C. P., Co. 285 Harwick Standard Chemical Co. 289 Heveatex Corporation — Hoggson & Pettis Mfg. Co. 343 Holliston Mills, Inc. 288 Howe Machinery Co., Inc. 364 Huber, J. M., Corp. 294

I

Independent Die & Supply Co. 364 Indoil Chemical Co. — Industrial Ovens, Inc. 266 Interstate Welding Service —

J

Johnson Steel & Wire Co., Inc. 361

K

Keasbey & Mattison Co. 270 Koppers Co., Inc., Chemical Div. —

L

Lambert, E. P., Co. 357 Latex Distributors, Inc. 359 Littlejohn & Co., Inc. 357 Lockwood, Warren S., Inc. 280

M

Marbon Corp. 355 Marine Magnesium Products Corp. 359 Martin, Glenn L., Co., Inc. 283 Maryland Cork Co. — McKinnon Iron Works Co. 345 McNeil Machine & Engineering Co. — McNulty, Joseph A. 361 Monsanto Chemical Co. 265 Mt. Vernon-Woodberry Mills, Inc. 364 Muehlstein, H., & Co., Inc. 337 Mumper, James F., Co. 364

N

National-Erie Corp. — National Rosin Oil Products, Inc. 359 National Rubber Machinery Co. — National Sheradizing & Machine Co. 361 National-Standard Co. 284 Naugatuck Chemical, U. S. Rubber Co. 296 Neville Co. — New Jersey Zinc Co. 273

O

Olin, R. R., Laboratories 364

P

Pan American Chemicals Div. Pan American Refining Corp. 288 Parsons Engineering Corp. — Pennsylvania Industrial Chemical Corp. 279 Pequanoc Rubber Co. 348 Phillips Chemical Co. 256 Pittsburgh Plate Glass Co., Columbia Chemical Div. 259 Pratt & Whitney, Division Niles-Bement-Pond Co. — Preventive Maintenance Co. 361 Procter & Gamble —

R

Rand Rubber Co. — Randall, Frank E., Co. — Rare Metal Products Co. 359 Research Engineering Co. — Richardson, Sid, Carbon Co. 366 Robertson, John, Co. 290 Rohm & Haas Company, Resinous Products Div. — Rotex Rubber Company, Inc. 362 Royle, John, & Sons 339 Rubber Corp. of America, Latex Div. 359

S

St. Joseph Lead Co. — Schulman, A., Inc. Inside Back Cover Scott Testers, Inc. 348 Sharples Chemicals Inc. 263 Shaw, Francis, & Co., Ltd. 351 Shell Chemical Corp. — Shell Oil Co., Inc. — Simplex Cloth Cutting Machine Co., Inc. 349 Sindar Corp. — Sivon Machine Co. — Skelly Oil Co., Solvents Div. 274 Skelton, Sleat & Co., Ltd. 345 Snell, Foster D., Inc. 364 South Asia Corp. 357 Southeastern Clay Co. — Southern Clays, Inc. — Spadone Machine Co. 345 Stamford Rubber Supply Co. 351 Stanley Chemical Co. 344 Stanley Electric Tool Div. — Stauffer Chemical Co. 269 Stein, Hall & Co., Inc. — Stoner's Ink Co. 361 Sun Oil Co. — Synvar Corporation 353

T

Tamms Silica Company 361 Tanney-Costello, Inc. — Taylor Instrument Companies 272 Testworth Laboratories, Inc. 355 Textile Proofers, Inc. — Thropp, Wm. R., & Sons 355 Titanium Pigment Corp. — Trade News Service 361 Turner Halsey Co. 364

U

Union Carbide & Carbon Corp. — Union Pacific Railroad — United Carbon Co. Insert Following 290 United Engineering & Foundry Co. — United Rubber Machinery Exchange — Utility Mfg. Co. 355

V

Vanderbilt, R. T., Co. Front Cover

W

Weston Electrical Instrument Corp. — White, J. J., Products Co. — Williams, C. K., & Co. — Wills Rubber Trimming Machine Co. 357 Wilson, Charles T., Co., Inc. — Witco Chemical Co. 286, 287 Wood, R. D., Co. —

Carey MAGNESIA

OXIDES AND CARBONATES LIGHT AND HEAVY — TECH. AND U. S. P. QUALITY

The knowledge and experience of Carey Research Laboratories in using these products in chemical formulations are available upon request.

THE PHILIP CAREY MFG. COMPANY

Cincinnati 15, Ohio

OFFICES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES

MICA

WATERGROUND

"at its best"

Produced from mica scrap imported from India and Africa

WHITE and PURE

Quality at Competitive Prices

Send for Samples

CONCORD MICA CORPORATION

27 Crescent St. Penacook, N. H.

HUGHES PRINTING CO. EAST STROUDSBURG, PA.

Bare facts...

(reading time 17 seconds)

- Bear with us for a moment . . . you'll find it profitable.
- Availability of our own natural resources assures your *present* and *future* requirements for highest quality channel blacks at all times . . . under all circumstances.
- Combine this constant, assured source of supply with friendly, helpful service and you'll have the *bare facts* on why it's pleasant and profitable to do business with the Sid Richardson Carbon Co.

TEXAS
CHANNEL BLACKS

Sid Richardson
CARBON CO.
FORT WORTH, TEXAS

GENERAL SALES OFFICES
EVANS SAVINGS AND LOAN BUILDING
AKRON 8, OHIO

crude rubber

A. Schulman, Inc. is a dealer and broker of Crude Rubber and Synthetic Rubber. Although we deal in the standard grades, we also deal in special qualities of Crude Rubber brought in from select plantations, and we feature special types of rubber.

We handle types of rubber originating in Southeastern Asia, Malayan Archipelago, South America and Africa — standard grades and special grades.

A. Schulman, Inc. is ready to supply you with special types of rubber for particular application, and will submit samples for your special requirements upon request.

A. Schulman, Inc. is a member of the Rubber Trade Association of New York, Inc., and of the Commodity Exchange, Inc. Our Crude Rubber Division is ready to assist you.

OFFICES AND PLANTS THROUGHOUT THE UNITED STATES TO SERVE THE WORLD

A. Schulman Inc.

Rubber and Plastics

MAIN OFFICE AND PLANT: 790 E. TALLMADGE AVE., AKRON 9, OHIO

AKRON, OHIO • NEW YORK CITY • BOSTON, MASS. • JERSEY CITY, N. J.

E. ST. LOUIS, ILL. • HUNTINGTON PARK, CALIF.

It Pays to

STANDARDIZE

on

CLIMCO

Processed LINERS

because they:

- ★ Prevent stock adhesions
- ★ Greatly outwear ordinary liners
- ★ Preserve tackiness of the stock
- ★ Eliminate lint and ravelings
- ★ Permit horizontal storage

These and many other proven advantages of Climco Processing save time and money by eliminating down-time, speeding production, protecting stocks and reducing liner replacements. Since 1922, leading rubber companies have found that Climco Processing repays its moderate cost many times over. Give them a trial in your plant.

THE CLEVELAND LINER & MFG. CO.
5508 Maurice Ave. • Cleveland 4, Ohio, U. S. A.
Cable Address: "BLUELINER"

ILLUSTRATED LINER BOOKLET

Tells all about Climco Liners and Linerette and how to get better service from liners. Write for your copy now.

CLIMCO

PROCESSED CLIMCO **LINERS**

SERVING THE RUBBER INDUSTRY FOR 27 YEARS

LINERETTE
INTERLEAVING PAPER
Treatment Contains
NO OIL OR WAX
Samples on Request